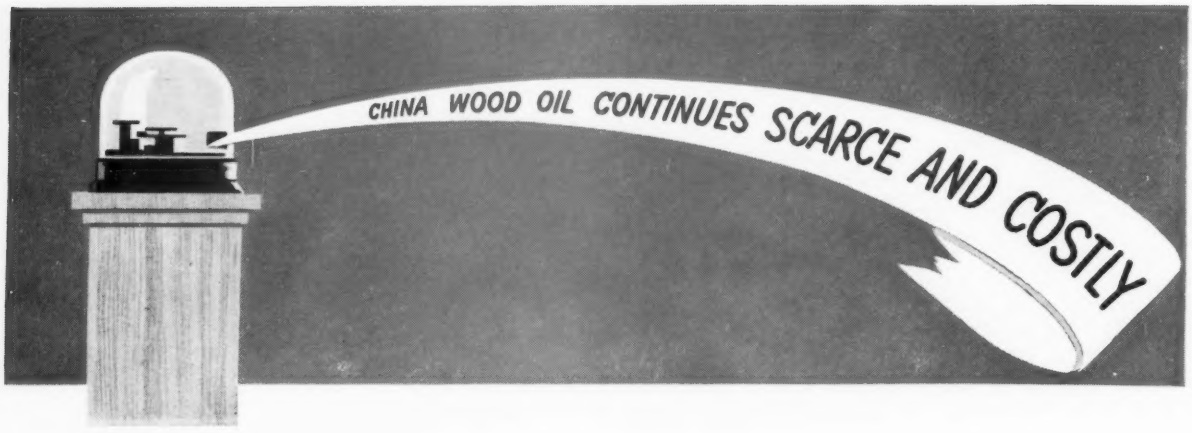
PAINT and varnish PRODUCTION

Established 1911

THE TECHNICAL MAGAZINE FOR MANUFACTURERS OF PAINT, VARNISH, LACQUER AND OTHER SYNTHETIC FINISHES

APRIL 1950



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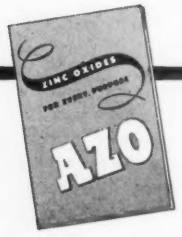

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VOL. XXX **No. 4**

FEATURES

DEPARTMENTS

NEXT ISSUE

Commencing with the May issue, we will publish a series of articles on Evaluation of Protective Coatings by George S. Cook of the Engineer Research and Development Laboratories at Fort Belvoir, Va.

The purpose of this series is to bring to the paint chemist a concise description of the methods and techniques used in the testing and evaluation of organic coatings. Since the results of tests may be of restricted value unless the purpose, meaning and limitation of the methods are known, special emphasis will be placed on the interpretation and understanding necessary to determine what the results mean and how to use them.

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Acetylene Chemistry

IN HIS address before the Synthetic Organic Chemical Manufacturers' Association meeting on March 14th, Dr. Henry B. Hass of the General Aniline and Film Corp. predicted a big future for Acetylene Chemistry. He paid special tribute to Dr. Julius W. Reppe and his coworkers for their courage and genius in making it possible to control this hazardous chemical, thus making it useful industrially.

Among the reactions described by Dr. Hass were catalytic addition of acetylene to alcohols in the presence of a basic catalyst to yield vinyl ethers. With anhydrous catalyst of the acidic type, these vinyl ethers may form polymer or copolymer materials. It has been found that the copolymer formed with vinyl chloride retains some of the adhesive qualities of straight vinyl ether polymers, and at present is being used in Germany as a coating for fabrics in the manufacture of raincoats. Copolymerization is also possible with other vinyl compounds. For instance, vinyl chloride-vinyl isobutyl ether copolymer is useful as a water-resistant coating.

Another very interesting vinyl ether copolymer is the crosslinking of maleic anhydride with polyvinyl alcohol to form a flexible three-dimensional polymer. When Fiberglas is coated with this material, vat dyes readily adhere to it, and beautiful lightfast dyeings become possible.

The most promising reaction thus far is the condensation of acetylene with aldehydes. Here many combinations are possible. Condensation of butanediol with dibasic acids yields polyesters which may be used as a plasticizer. The aldehyde which is condensed with acetylene need not be formaldehyde, but may be any aliphatic, alicyclic, aromatic or heterocyclic aldehyde capable of withstanding ethinylation conditions. The aldehyde may be unsaturated; if so yields a drying oil. Butanediol is an example of a compound which may now be more readily available because of Reppe's discoveries. Through a series of chemical reaction, this material may be converted into butanetriol which has properties similar to glycerine. By using different aldehydes, a whole series of triols are obtainable.

These are but a few of the products possible from acetylene, and it is interesting to note that many have possibilities as raw materials for the coatings industry. Dr. Reppe has paved the way for a very fascinating branch of organic chemistry, and with plans for commercial production of some of these acetylene compounds, we can expect a growing interest in these materials not only for the paint industry but others as well during the months to come.

Re-using Containers?

A RECENT announcement by the Interstate Commerce Commission to renew the ban on reusing "single strip" steel containers has caused some concern among paint manufacturers. In fact, the National, Paint, Varnish and Lacquer Association has mobilized its members in an effort to have this ban revoked.

The ban on re-use of "single strip" containers was temporarily suspended some ten years ago because of the acute steel shortage which existed at that time. However, since then the suspension was renewed periodically on application. It was recently learned that the Interstate Commerce Commission has postponed until the end of August, the final cancellation of the latest suspension.

Paint and drum manufacturers claim that the ban should be permanently lifted because: a) Experience during and since the war shows that light-gauge drums can be used after reconditioning for 8 or 10 trips without danger of fire. b) As a result, a new industry, drum reconditioning, has developed. This would be wiped out if drums must be destroyed after the first use. c) Drums are now being built stronger than before the war, so that ban on re-use is outmoded.

Also, manufacturers of industrial finishes claim that the purchase of a new drum for each shipment would raise their product about five cents a gallon.

EVALUATION OF UNDERWATER PAINTS

FOR STEEL SURFACES

By Dr. W. Husse

IT is a matter of wide international experience that the life and the corrosion resistance or protection exhibited by the innumerable types of underwater paints against river and ocean water under the variable conditions and modes of attack are by no means uniform. Paints which under certain definite conditions may exhibit perfect corrosion and wear resistance and almost unlimited life will fail completely within a short time if exposed to slightly changed conditions.

It is well known that the corrosion protection even of fixed river constructions of iron and steel represents an eternal problem. It is obvious, for this reason, that these difficulties are multiplied by the mechanical or erosive stresses to which these paint films are subjected in lock constructions, dikes, dams, river banks, shore and coast constructions, especially where the steel work is exposed to sea water or (in river mouths) alternating sea- and river water and, in addition, to the alternating corrosive attacks of water and air due to the tides and to the corrosive influence of submarine growth, sea pocks, etc. as well as to the mechanical (boring) action of the sea- and river water crustaceans. Besides, there is the effect of the waves, moving sand, floating wood, ice (from small particles to heavy floes or packs) etc.

Questions Posed

TO solve at least part of these almost unsurmountable difficulties, the former Government Material Testing Station (Staatliches Materialprüfungsamt) at Berlin, now dissolved, was asked to appoint a Commission to answer the following principal questions:

1) Will the well known bitumen or anthracite tar-pitch solutions (applied cold) protect the iron against river and sea water or is this possible only with the solventless hot applications of the same paint bases present in thick layers of 0.08 to 0.2 inch?

In 1936 the German Government Material Testing Station appointed a commission to study and evaluate various types of underwater paints designed to protect river and sea construction of iron and steel. Because of World War II and the post-war adjustment period, results of this important study were not made available until Dec. 1949. This study was finally given in the form of a report at the First General Meeting of the Paint and Varnish Committee of the Chamber of Technology in Berlin last December, and is published here for the first time.

2) Are there any differences between the degrees of corrosion protection against river and sea water exerted by bitumen or anthracite tar pitch applications (hot or cold)?

3) Do solventless, hot applications containing inorganic, or mineral, fillers yield the same or better results than those containing microasbestos, slate meal, stone powder, etc.

4) Must red lead primers be applied to attain optimum results or would bituminous primers do as well? Attention was also to be paid to the disadvantageous influence of the solvent action of bituminous top coats on insufficiently dried red lead priming coats.

This latter requirement based on the common practice in marine steel construction that the constructional sections painted with red lead would receive their bituminous top coats previous to immersion in the water without paying much attention to the condition of the red lead primer beneath.

It was specified that this part of the experimental work should be carried out so that the red lead priming coat was protected by a non-solvent intermediate bitumen layer before applying the top coating.

5) What are the protective effects obtained with chlorinated rubber and benzyl-cellulose lacquer films?

6) Is it possible to get along without priming coats at all, if the steel surfaces are rubbed or brushed with anthracene oil before painting with bitumen or anthracite tar pitch? (It was supposed that such thin primary

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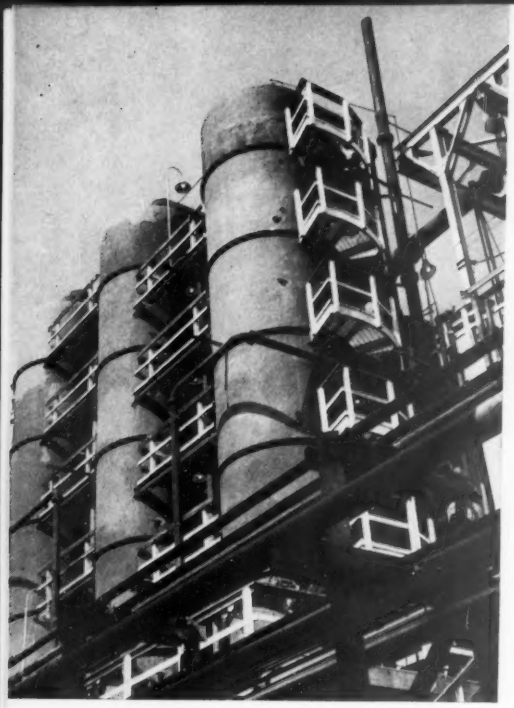

All photos courtesy of United States Rubber Co.

RUBBER BASE

PART II

by **H. L. Rice,** **Chief Chemist**
Rubber & Plastics Compounds, Inc.

THE biggest difficulty with latex will come in the compounding. There is no doubt that considerable care and effort are required to make latex compounds, but a great deal may be done by forgetting about the magic and mysterious properties of latex, and taking a sensible approach. In fact, with such an approach, most of the ordinary latex jobs can be done by the use of a few simple principles of latex compounding and with only a very few materials.

The first thing to do, in building a latex compound is to decide what characteristics are desired in the dry film. This will be decided on the basis of the use to which the compound is to be put, the nature of the equipment and the type of process in which the compound itself is to be used, and the finished product desired. But in deciding upon these characteristics, don't expect latex to work miracles; don't expect to get a compound with an impossible combination of properties. Remember that it is easier to change a process or a machine than to make a compound with a number of incompatible properties. Once the specifications for the compound are set up, choose the materials to give this type of compound. The following list comprises all of the non-rubber materials necessary for ordinary latex compounding: Sodium hydroxide, Ammonium hydroxide, Alginates, Casein, Sulfur, Darvan, Wetting agent, Zinc oxide, Accelerators, Antioxidants, Karaya or tragacanth gum, Starch, Glue, Glycerine, and Fillers (such as clay, whiting, barytes).

Stabilizing Latex

FOR stabilizing or preventing thickening, two types of materials are used: alkalis, such as ammonia and caustic to keep the latex alkaline, thus preventing bacterial decomposition, thickening and finally coagulation. The second type of stabilizing agent is the protective colloid. Casein is the most satisfactory material of this type, although the alginates are also frequently used. A satisfactory casein solution is prepared quickly by mixing one part of casein with four of water, letting stand for a few minutes, then stirring in 1/3 of a part of 28 per cent ammonia and heating on a steam bath or in a steam jacketed kettle until a clear transparent solution is obtained. If the casein solution is to be stored for a longer period than overnight, a 0.2 per cent of thymol should be added. Casein should be used as sparingly as possible but in an amount which will give the degree of stability desired. This will vary, depending upon the requirements from 0.25 per cent of dry casein on the latex solids to a figure as high as 10 per cent of casein.

When a cure is needed the easiest and best thing to do is to take a standard formula which is suitable for latex, and use it continuously. This will save all kinds of trouble arising with accelerators, which may have a coagulating or thickening effect upon latex or which are otherwise unsuitable. Such a standard formula will include an accelerator (sulfur, zinc oxide) and in most cases an antioxidant. Before adding these materials to the latex, they should be pasted with water, either separately, or better, together in one batch. By far the best way of doing this is to use a dispersing agent, such as Darvan, which does a real job of dis-

persing and simplifies this step remarkably. The accelerator batch may be satisfactorily wetted by hand for many jobs, or in a power agitator. If however, there is any tendency for these materials to settle out while the compound is being used, which frequently happens in thin latex mixes, they must be ground in a ball mill until the mixture is fine enough so that settling does not take place.

Wetting Agents, Thickeners, Fillers

IT is frequently necessary to add a wetting agent to the latex in order to improve the penetration of rubber into the pores. There are many wetting agents sold for this purpose. Synthetic wetting agents are very good, although many of them often cause severe foaming. In such cases, turkey red oil or other similar materials are frequently used.

Latex compounds may be bodied by the use of gum Tragacanth or Karaya. There are many other gums and thickening agents which might be used, but either of these gums will usually do the work. A slow drying latex film is obtained by the addition of glycerine or other hygroscopic material to the latex in the amount required to give the desired degree of slow drying. Various kinds of starches are frequently used to give improved body and adhesion in the finished latex film as well as to cheapen the compound. There are many kinds of starches and the particular starch used will depend upon the results desired.

To get a heavily bodied dried film, fillers such as China clay, whiting or barytes are compounded with latex. These materials should all be pasted, preferably with a solution of Darvan, before being added to the latex. They should be added at a sufficient dilution to have a watery consistency. When it is desired to keep the water content of the compound very low, stirring a small quantity of latex into the paste until it is diluted to the proper consistency will suffice. The ordinary deodorants such as oil of wintergreen, sassafras or cinnamon can be used in latex materials.

The last few paragraphs describe and sum up all of the materials which are necessary for the ordinary types of latex compounding. To one just beginning with latex there is always a temptation to substitute other materials; always a feeling some new material will do a much better job than the old material. This is sometimes true. However, it is recommended to use materials, which have been successful before.

The type of latex you use will depend upon the type of results you want to get. For ordinary work use normal ammonia latex. To obtain compounds with high solids, and low water content, or ammonia-free compounds one of the standard concentrated latices is recommended.

Handling

IN the mechanical handling of latex compounds there are two rules which can never be violated. One is that there must be no friction or rubbing surfaces in latex; the second is that latex must not be allowed to come in contact with copper, or brass, or any other alloy containing copper. This latter rule is particularly important in handling ammonia latex since copper is soluble in ammonia. Beyond these two strict rules, the type of mechanical equipment you will devise to handle your latex is entirely a matter of common sense, ingenuity and the amount of money available. The ordinary agitated tank makes a very satisfactory vessel for mixing latex. With heavily compounded mixes, the speed of the paddles should be kept down below 40 r.p.m. to avoid coagulation. For the same reason, high speed agitators should not be used with latex or latex compounds. The rule against rubbing surfaces in latex forbids the use of pumps for transporting latex or latex compounds through pipes, and requires that air pressure or gravity be used. If latex is kept for any length of time in a storage tank, it should be stirred either by hand or by means of a suitable agitator for two or three minutes before drawing off any latex in order to stir in the creamed rubber. If latex is being used from the tank daily, then a stirring of two or three minutes each day should be sufficient.

To assure quality and uniformity, rubber chemicals undergo exacting test. Technician makes distillation test to check moisture content.

Meters measure out the amount of butadiene, styrene, soap solution and water to make batch of synthetic rubber at U. S. Rubber plant.

GR-S synthetic rubber reactor is a steel vessel in which ingredients are stirred from 12 to 14 hours to become white synthetic rubber.

For some processes where it is desired to maintain a latex compound at a uniform consistency, it may be necessary to keep the temperature constant either by cold water or refrigeration.

Dispersing Problems

WEIGHED dispersions are usually added directly to the latex using a suitable stirring device. Sometimes a small portion of the latex is added first to the dispersion mixture and thoroughly stirred to dilute the dispersion for final addition to the latex. This mixture is then poured into the main body of the latex and any dispersion remaining in the vessel may be washed out with a little more latex. This latter method is safe enough for the ordinary small proportions of curing ingredients. It is used only when it is desired to keep the total solids content of the mix as high as possible. If large quantities of fillers are to be used, it is not always safe to add the latex to the filler for coagulation may take place. Large quantities of filler are best handled by dispersing the filler separately in water containing Darvan, then pouring the dispersion into the latex which should contain a protective such as casein.

It is seldom necessary to check pH values in ordinary latex work. Make sure that dispersions are not on the acid side. It is safe practice, however, to keep the pH value between 9 and 11 in both dispersions and final latex mix. If it is too low, a little ammonia may be added.

Hard water should be avoided in latex work. If it is very hard, it may cause flocculation and even coagulation of latex mixes. If no soft water is available, the hard water should either be boiled or softened with a suitable softening agent.

The use of all copper or brass fittings or equipment should be avoided in latex work. Aqueous ammonia tends to dissolve copper, which may thus contaminate the mix.

The stability or resistance to coagulation of latex mixes is commonly gauged by rubbing a few drops of the mix with a finger on the palm of the hand and noting the time required for coagulation. This method is very rough and the results naturally vary with the individual. A better method is to determine stability mechanically as follows:—

Place 50 c.c. of the latex or latex mix in a 4 oz. square glass bottle, 1¾ inches by 4⅜ inches high, set in a water bath at 67° F. (19.5° C). and stir by means of a high speed (10,000 R.P.M.) Hamilton Beach soda mixer. The time elapsing from the start until clots appear (visible by pouring from one bottle to another, or by removing a small amount on a stirring rod and rubbing out on a glass slide) is the coagulation coefficient. The coagulation time for stable latex in this test runs from 6 to 15 minutes.

Viscosity

THE viscosity of freshly made latex mixes depends on their composition and particularly on whether normal or concentrated latex is used. Mixes made from normal latex are usually quite thin, and their viscosities can be increased by the addition of thickening agents.

It is important in continous factory operation, that the viscosity of a given compound remain reasonably constant from batch to batch. At times this is exceedingly difficult to accomplish due to natural variations in the latex, and it is frequently necessary to "juggle" with individual batches, either adding a thickening agent or diluting, to get the viscosity to run uniformly. Buying a selected grade of bulked latex helps materially to overcome this difficulty.

The viscosity desired in a latex compound will depend on the use. For producing paints for spraying, low viscosity is desirable. The problem of correct viscosity usually has to be worked out in the plant for each individual case.

Viscosity measurements of latex mixes are usually relative only and may be taken with a Stormer viscometer or by a flow method using a pipette. Relative viscosity of mixes is usually estimated by timing with a stopwatch the flow of a standard volume, say 25 cc. from a pipette or other suitable container, preferably at a standard temperature.

Settling

SETTLING out of compounding ingredients in thin latex mixes sometimes offers difficulties. It is practically impossible to prevent completely, by chemical means, the

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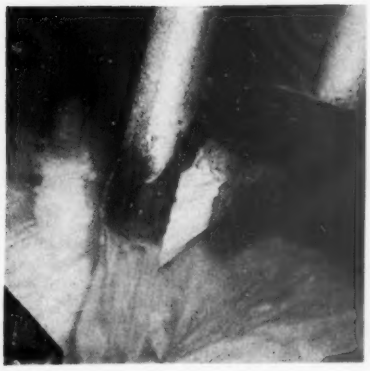
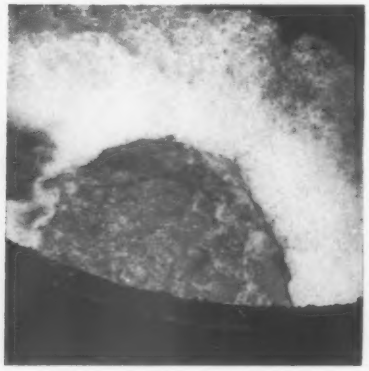


View inside vessel where synthetic rubber is produced. Ingredients are thoroughly mixed.



Synthetic rubber latex coagulates into solid chunks as acid and salt solution are added.

Foam forms in acid tank when diluted with water. Acid helps convert liquid latex into solid rubber.

A.S.T.M.

COMMITTEE D-1

MEETING REPORT

A PANEL discussion on colorimetry featured the three day meeting of A.S.T.M. Committee D-1 on Paint, Varnish, Lacquer, and Related Products, which was held in connection with A.S.T.M. Committee Week in Pittsburgh, on February 27 to March 1. *Walter Granville,* Container Corp. of America, served as moderator of the panel discussion. The other members were *A. E. Jacobsen, M. P. Morse, R. S. Hunter, E. J. Dunn, Jr.,* and *Francis Scofield.* The purpose of the discussion was to bring to the attention of members of the committee and others interested, the most recent techniques and thinking regarding color measurement and specifications and control as applied to paint and paint materials. The discussion at this meeting showed that the use of instruments, not only spectrophotometers but others, in color matching and color control has increased greatly in the last decade, and this is expected to continue. It was indicated that some paint companies most vitally interested in color control for paint do not use instruments but rely entirely on retained samples of color visual comparison. The principal problem with regard to measurement by instrument, concerns illumination and viewing conditions in colorimetry, that is, measurements now being made are of such accuracy that variations in the surface characteristics of samples are bothersome to the accurate measurement of small color differences. It was quite evident from the discussion that people will always be concerned by small color differences, and it is to be expected that even closer matching of colors will be demanded until experience devises tolerances that are practical.

In addition to the main meeting of Committee D-1, meetings were also held of some 65 subcommittees and working sections and groups over the 3 day period. This large number of meetings is an indication of the activity in the committee in considering the variety of technical problems regarding the testing and evaluation of paint and paint materials.

Committee D-1 cooperates very closely with the *Federation of Paint and Varnish Production Clubs.* At a meeting of the Joint Federation—A.S.T.M. Committee, it was pointed out that some 31 A.S.T.M. methods and specifications have now been approved as Federation standards. The Federation is considering for approval some additional A.S.T.M. standards, and Committee D-1 is studying several methods submitted by the Federation.

Printing Inks

It was announced that the new Subcommittee on Printing Ink has been organized and that the committee had held a meeting in Atlantic City on November 3. The officers of the printing ink subcommittee are: Chairman, *P. J. Thoma,* Time-Life, Inc.; Vice-Chairman, *G. L. Erikson,* Braden-Sutphin Ink Co.; and Secretary, *A. C. Zettlemoyer,* National Printing Ink Research Institute. Some seven working groups have been organized on the following subjects: Definitions, Methods Review, Fineness of Grind, Rubproofness, Printing Ink Rheology, Paper Ink Relations, and Drying Time. The next meeting of the printing ink subcommittee will be held in June.

Drying Oils

New tentative methods for determining hydroxyl number and for break test of drying oils were accepted for subsequent addition to standard methods D 555. Work is continuing on studies of procedures for determining diene value and on a revision of the foots test.

Cellulosics

The subcommittee on Cellulosic Coatings submitted a new tentative method for cold test checking of lacquers; also new specifications for diisobutylene and for methanol. The subcommittee plans to review extensively the general methods of sampling and testing lacquer solvents and diluents (D 268–49), and the various test procedures now included therein will be published separately.

Flash Point

An important new activity is the initiation of work on the development of a test for flash point of paints, varnishes, lacquers, etc., by the Tag open cup tester. This will include consideration of the *Bureau of Explosives'* method and the *Association of American Railroad's* test procedure.

Electrometric Testing

The new Subcommittee on Electrometric Testing of Films presented a proposed method for conducting a time potential test. Work is continuing on the study of the measurement and significance of changes in the electrical resistance of paint films.

Solvents

A new tentative method for determining heptane number has been completed. There is considerable interest in this new test for determination of the solvency characteristics of high solvency hydrocarbon solvents for resins. Two test procedures for determining Kauributanol number of hydrocarbon solvents were also accepted for letter ballot vote. The solvents subcommittee is continuing further work on naphtha solvents and copper corrosion.

Painting Metallic Surfaces

The Subcommittee on Painting of Metals is undertaking a program covering the painting of aluminum and its alloys and the painting of galvanized steel, and also the identifying of paints for various surfaces.

Pigments

New specifications are in preparation for calcium carbonate pigment, and revision in the Standard Specifications for Magnesium Silicate Pigment (D 605-42) are in preparation. The specifications for iron oxide pigments are also being reviewed. The Tentative Specifications for Copper Phthalocyanine Blue (D 968-49T) were recommended for adoption as standard.

Gloss

The Subcommittee on Optical Properties reported progress has been made in the preparation of a new method of test for the gloss evaluation of high-gloss finishes having gloss values greater than 80 by Method D 523. A test for low-gloss finishes and an 85-deg. sheen test is in preparation. The subcommittee plans to recommend adoption as standard next year of the Tentative Method of Test for Specular Gloss of Paint Finishes (D 523-48T). A study is being undertaken of tests for determining small color differences.

Drying, Viscosity, Flexibility

The Varnish Subcommittee submitted as tentative, a new test for determining dust-free drying time by use of cotton flock and also a test for tack by the Zapon tester. A Kauri reduction test for varnishes and a revision of the viscosity test using Gardner-Holt tubes was submitted for inclusion in Method D 154. Viscosity conversion data for the several flow cups has been prepared and will be submitted in the form of a paper for publication in the ASTM BULLETIN. A new tentative method of test for viscosity of paints, varnishes, and lacquers by the Ford viscosity cup was presented for letter ballot of the committee as tentative. This method has been prepared in cooperation with the Chicago Paint and Varnish Production Club. New work is being undertaken on a study of print free test. A new tentative method for flexibility of varnishes of the oleoresins and alkyd types, using a modification of the standard Kauri reduction test, has been completed.

Resins

The Subcommittee on Resins recommended methods for determining chlorine in vinyl resins, precipitation method for total solids, softening point test, solvent tolerance of amino acids, and test for phthalic anhydride in presence of other interfering dibasic acids. The subcommittee is continuing its study of tests for specific gravity, clarity and color of solid resins. A revision was submitted in the Tentative Methods of Testing Bituminous Emulsions for Use as Protective Coatings for Metal (D 1010-49T) covering the stability and water-resistance tests. It was reported that work is under way on test methods for coal-tar-base emulsions and on asphalt-base emulsions. It is expected that these will be ready for letter ballot within the year.

Other Properties

A considerable amount of work has been done in the committee on studies of additional tests for physical properties of paint. This includes procedures for oil absorption of pigments, application of uniform films, specific gravity of pigments, hardness of paint films, fire retardance of paints. A new test procedure for measuring dry film thickness of paint applied on magnetic base will be added to the present Method D 1055. New work has been undertaken on a study of a test for wet film thickness and on methods for determining fineness of grind.

Shellac

The Subcommittee on Shellac has been cooperating with I.S.O. Committee 50 on Lac and Lac Products of the *International Standards Organization.* In this connection a review has been made of the standards on shellac of the *Indian Standards Institute* and comments have been forwarded to the I.S.I.

Traffic Paint

The Subcommittee on Traffic Paints presented a progress report covering its work on studies of accelerated tests for durability and suspension properties of traffic paint. A specification for glass beads for traffic paint is in preparation, and in this connection tests will need to be developed for determining percentage of true spheres, transparency, color, chemical stability, softness, and crush resistance. The present Standard Method of Test for Dry to No-Pick-up Time of Traffic Paint (D 711-48) will be revised.

Chemical Analysis

Several new methods of chemical analysis of pigments have been completed and will be published as tentative in the 1950 Report of Committee D-1. These cover analytical procedures for yellow, orange and green pigments containing lead chromate and chromium oxide green, blue pigments, and for zinc dust (metallic zinc powder). Additional methods are under development for the analysis of ochres and umbers and also a revision of methods of analysis for basic carbonate and basic sulfate white lead.

Exposure Test on Wood

The method of conducting exposure tests on wood is being actively studied looking toward improving the present method which covers body paints only and extending the scope to include trim paints. An important accomplishment was the completion of improved record forms for recording exposure test results. The revised forms were prepared in cooperation with the Federation of Paint and Varnish Production Clubs.

Mirro Light Paint in Operation

The Mirro Light Paint Factory has commenced operation at 2115 Union Blvd, Allentown, Penna. on March 20, 1950. A new, modern building has been erected and includes areas for manufacturing, warehouse and retail sales. The retail sales department has a modern all-glass front of unique design conceived by Mr. Lester Baker. Mr. Baker for the past 11 years has operated the Baker Paint Factory in Kingston, Penna. and will continue to direct the policies of both plants. Mr. John Stoddart will be the local manager of the Mirro Light Paint Factory.

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Baker Castor Oil Advances Smith

M. K. Smith has been advanced by the Baker Castor Oil Company to become director of the Technical Division according to an annoucement of I. Milton Colbeth, president of the company. In his new post he will be in charge of all technical activities of the company except engineering and agronomy.

Mr. Smith has been with Baker Castor Oil since 1941 and has been active in a variety of assignments ranging from research problems to manufacture of new products. His position prior to this promotion was director of chemical development.

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Southern Production Club Elects Officers at Memphis Meeting

The following officers were recently elected at the annual meeting of the Southern Paint & Varnish Production Club held in Memphis, Tenn.—President: *William A. Smith* of the Dixie Paint & Varnish Co.; President-elect: *A. E. Verbyla* of the Lenoir Wood Finishing Co.; Vice President: *J. Robert English,* Leland Moore Paint & Oil Co. Members of the executive committee elected were: *M. J. Catena,* Harris Standard Paint Co., *W. Frew,* Decatur Chemical Co., *G. W. Garner,* Burks-Hallman Co., and *A. M. Holcomb,* Carolina Paint & Varnish Works.

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Perry, Pres. of Commercial Solvents Corporation Dies

Henry E. Perry, president of Commercial Solvents Corp., New York, died on March 15th in a fall from his 14th floor office at 17 E. 42nd St., New York, N. Y. He was sixty years old.

Mr. Perry joined Commercial Solvents in 1922 as an engineer at the Terre Haute, Ind. plant. By 1934 he was made vice president and was elected a director five years later. In 1945 he was named executive vice president and elected president in 1947.

. . . UNDERWATER PAINTS

(From Page 7)

applications may react exactly as the well-known micro-films of linseed oil under the common oil paint films.)

Preparation

ALL preliminary steps and preparations as well as the inspection and evaluation of the test plates (panels) were controlled by a Commission representing the various Government Departments interested. The tests commenced in July 1936. Inspections were conducted in the Autumns 1937, 1938 and 1939. Exact study of all the test panels in the laboratory took another considerable period. The final results were not published during the war or even until December 1949.

The paints were applied to steel panels shaped and dimensioned as indicated in Fig. 1, accompanying sketch. They were 0.12″ thick. The lateral ears of the panels were used for suspension and for the mounting of identification tags. All panels were made of exactly the same steel charge and of homogeneous composition. They were sandblasted with finest sand on all sides and painted at once. All painting being effected in accordance with normal standard practice, i.e. within 48 to 72 hours.

All panels were subdivided into four groups: Group 1, consisting of five systems of cold application paints, Group 2 consisting of four systems of hot application paints with filler, Group 3 consisting of three systems of hot application paints without filler, and Group 4 consisting of various paint systems applied on different priming coats. The panels were submerged in two water locations (the Neckar locks at Heilbronn and in the Plauer lake, and in two sea water points (the Holtenau locks at the Baltic entrance of the Emperor-William-Channel and in the North-Sea harbour of Wesermünde).

Composition

THE composition of the various priming and top coats applied was selected as follows:

I. Priming Coats on Red Lead Basis:—(Two coats)

1) Red lead in linseed oil, boiled oil (10–12% oil).

2) Red lead-synthetic resin combination.

3) Red lead-chlorinated rubber combination.

II. Priming Coats Without Red Lead:—(Single Coats)

1) Bitumen solution containing 60% (by weight) of bitumen (SP 45–50°) and 40% of solvent mixture (crystal oil 70% and purified solvent benzene 30%.

2) Anthracene oil of 1.093 spec. weight (53% distilled over at 310° Centigrade, 84% at 360° Centigrade).

3) Tar pitch solution (SP abt. 30° Centigrade) in benzene.

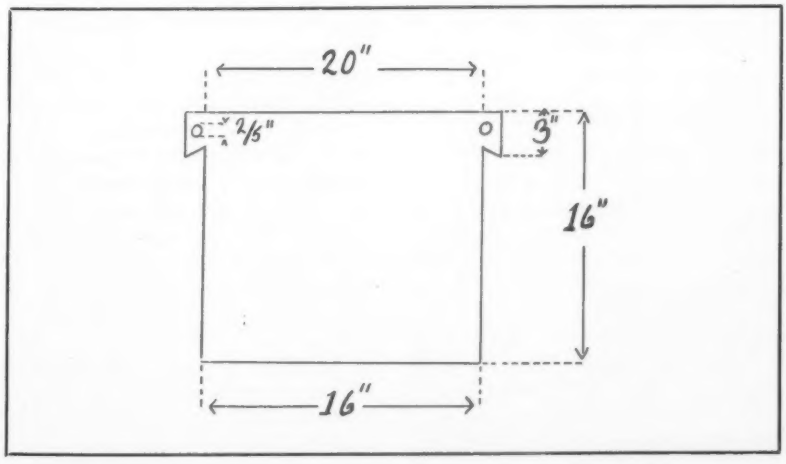

Figure 1

III. Hot Application Paints:—(Single coats)

1) Tar pitch with filler:—(marked H-1)
85 parts anthracite tar-hard pitch (SP 64° Cent.),
15 parts Anthracene oil (spec. weight 1.68),
46 percent. of micro-asbestos
(0.2 – 0.09 mm = 0.7%
0.09 – 0.06 mm = 1.5%
0.06 mm = 97.8%)

2) Tar pitch with filler:—(marked H-2)
90 parts anthracite tar pitch (SP 45° Cent.)
20 parts high-vacuum bitumen (SP 61° Cent.)
60 percent slate meal (spec. weight. 1.84)
(0.6 – 0.2 mm = 0.8%
0.2 – 0.09 mm = 1.0%
0.09 – 0.06 mm = 5.5%
0.06 mm = 92.7%)

3) Tar pitch without filler (marked H-3)
90 parts anthracite tar pitch (SP 60° Cent.)
20 parts high-vacuum bitumen (SP 60° Cent.)

4) Tar pitch with filler (marked H-4)
90 parts anthracite tar pitch (SP 45° Cent.)
20 parts high-vacuum bitumen (SP 61° Cent.)
60 percent. slate meal (spec. weight 1.60)
(degree of fineness of meal like H-2)

5) Tar pitch without filler (marked H-5)
90 parts anthracite tar pitch (SP 60° Cent.)
30 parts high-vacuum bitumen (SP 120° Cent.)

6) Tar pitch without filler (marked H-6)
85 parts high-vacuum bitumen (SP 120° Cent.)
15 parts anthracene oil

7) Tar pitch with filler (marked H-7)
50 parts anthracite tar pitch (SP 56° Cent.)
50 parts bitumen (SP 56° Cent.)
19 percent. stone powder ($CaCO_3$)
(0 – 0.09 mm = 63%
0.09 – 0.2 mm = 34%
0.2 mm = 3%)

We thus have:—

H-1, H-2, H-4, H-7 } containing fillers

H-3, H-5, H-6 } containing no fillers

H-3 and H-5 differ from each other only by the softening point (SP) of the bitumen contents.

IV. Cold Application Paints (Two coats)

on bitumen basis

1) Anthracite tar pitch (SP 60–70° Cent.) Solvent benzene, purified.

2) High-vacuum bitumen (SP 60° Cent.) White spirit.

3) Commercial cold application paint with anthracite tar pitch.

on synthetics basis

4) Chlorinated rubber paint (red-brown)
- 20 parts (weight) chlorinated rubber "H"
- 7 parts T-Oil
- 3 parts Clophene A 60
- 70 parts Xylol
- 12 parts red oxide of iron per 100 parts vehicle.

5) Benzyl-Cellulose lacquer (silver)
- 8 parts (by weight) Benzyl-cellulose of medium viscosity,
- 6 parts (by weight) clophene A 60
- 4 parts (by weight) AW-2 resin
- 2 parts (by weight) tricresyl phosphate C-II-S
- 10 parts (by weight) butyl glycol
- 10 parts (by weight) spirit
- 5 parts (by weight) butanol
- 50 parts (by weight) xylol
- 5 parts (by weight) aluminum bronze powder

The cold application paints 1, 2 and 3 were applied in two coats—a) on two linseed oil-red lead priming coats, b) on a single priming coat of tar pitch solution in benzene hydrocarbons. (SP 30° Cent.)

The synthetics paints 4 were applied on linseed oil-red lead priming coat and on chlorinated rubber-red lead primers.

Results

EVEN the first inspection after 15 months indicated that the bitumen solutions applied cold would prove failures, regardless of the kind of priming coats (red lead combinations or bitumen mixtures) selected and the mode of exposure applied. The panels fully submerged or exposed to water and air or air alone failed without exception, the submersed panels exhibiting blisters and rust spots, while those exposed to air were cracked. The red lead priming mixtures reacted unfavorably in all cases including the chlorinated rubber and benzyl cellulose top coats, although there were slightly better results with chlorinated caoutchouc top coats in sea-water.

The failure of the red lead priming coats is not supposed to be caused by any characteristic properties of the red lead combinations themselves. The Commission agreed that these unfavorable results were due merely to insufficient aging of the priming coats previous to the application of the top coats. It was stated above that the conditions of the tests were adapted strictly to actual works conditions and these do not take care of this fact. Insufficient drying periods cause these priming films to act as mechanical insulation between iron and top coating, reducing the adhesion and inducing cracking and loosening of the top coatings. Another factor acting against the efficiency of red lead priming coats in these tests appears to be an excess of oil in the mixtures, and there can be no doubt that if the priming paints on red lead basis contain less oil and are permitted to dry completely before applying the organic top coatings the results will be entirely different.

Results of Hot Application

THE "H"-series of paint films applied hot (i.e. without solvents) proved superior to those applied cold, although really good results were obtained only with the films containing mineral fillers. Of the films containing no fillers only "H-3" withstood the 15 months action of sea water. All films were covered with sea pocks tending to desintegrate the films. Those suspended in river water exhibited considerable cracking, especially in connection with red lead priming coats. The films containing high vacuum bitumen (H-3, H-5, H-6) had developed very brittle surfaces, the degree of brittleness increasing with rising softening points of the bitumens used. The combinations "H-3" proved best under all conditions.

The "H" series containing fillers exhibited varying reactions toward the different corrosive agents. By far the best results were obtained with H-1, second best with H-2, while the combinations H-4 and H-7 failed entirely. It appeared that the quality of these films improved with rising contents of anthracite tar pitch, while the unsatisfactory behavior of the panels H-7 seemed to be due to the unsuitable filler, ground lime. H-1 proved most resistant under all conditions; the films H-1 exposed to the atmosphere remained entirely unchanged.

Last Inspection

ALL the films produced with bitumen and pitch solutions and applied cold had been entirely destroyed by rusting, etc. The same applied to the benzyl cellulose films which had been ruined entirely at least in sea water while the films exposed to river water conditions had developed numerous blisters only.

The hot-application paints without fillers (H-3, H-5, H-6) had also failed completely in seawater, regardless of the kinds of priming selected. Better results were obtained with the samples exposed to river water and alternating water-air conditions, the tests H-3 being by far the best of them, H-5 second best, while H-7 failed completely long before the 40 months were over. It is true that the results obtained with identical samples in different locations and positions were not always exactly similar, but there can be no doubt that none of the paints of this group without fillers came up to specification or would bear comparison with any of the films containing mineral fillers, all of which were still in the running after 40 months. The report of the commission regarding these panels can be condensed as follows:

All filled paints of the H-group stood up well against atmospheric corrosion during the period of 40 months. None of the panels were appreciably corroded, while H-1 had remained absolutely unchanged.

Alternating effects of air and water entirely ruined H-4 and H-7. H-1 on red lead priming remained unchanged in alternating river and sea water, while H-2 was second best, standing up fairly well against alternating air and river water, but less well in sea water.

The panels H-1 without red lead priming coats were perfectly resistant only against river water but failed in sea water. The same applies to H-2, while H-4 and H-7 failed completely, especially after 40 months in sea water.

Straight submersion in river water did not considerably attack any of the paint films of this group (filled), while all panels failed after 40 months of submersion in sea water. The panels H-4 and H-7 had already been destroyed 12 months beefore. Best results under these conditions were obtained with H-2 (slate powder filling and bitumen primer), but even these films had been strongly attacked.

Conclusions

1) A number of the paints tested proved that they could successfully be employed in river lock construction work. This applies particularly to the anthracite tar hard pitch films with micro-asbestos filler (H-1).

2) Second best on an average behaves the mixture of anthracite tar pitch and HV-bitumen containing slate metal (H-2), while the similarily composed mixture H-4 yielded approximately similar results.

3) Sea water tests did not yield any definite results. While some of the paint films behaved decidedly better than others, even the best (H-2) exhibited heavy damages after 40 months of submersion.

4) The bituminous cold-application paints with solvents did not behave satisfactorily throughout.
The synthetics paints on oil-less chlorinated rubber basis proved quite satisfactory under river water exposure and, to a somewhat lesser extent even in sea water, where they proved quite resistant against the penetrating action of sea pocks, etc.

5) If highly efficient and resistant top coatings are employed there are no serious differences between red lead- and bitumen priming coats. The various single results of these tests indicated that in the case of straight air exposure or to alternating air-water exposures red lead priming possesses the advantage that in case of mechanical injuries or cracking of the top coats it will prevent underrusting longer than bituminous priming coats. Red lead priming coats are not able to fulfill this function unless the red lead paints are not too fat and the paint films are permitted to dry at least six weeks previous to applying top coats containing solvents. However, the trouble is that under practical operating conditions in river locks or other river or harbor construction work these long drying periods can be maintained only in new constructions, while the usual repairs or overhaulings must usually be effected within much shorter spaces of time.

6) There can be no doubt that the very favorable results obtained with the hot-application anthracite tar pitches and mineral filling substances justify further investigations in this direction.

Note: The last inspection was made after 40 months of exposure.

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Brazil Oiticia Appoints Flatow

Mr. M. E. Marvin, President of Brazil Oiticica, Inc. New York announced the appointment of Mr. Robert E. Flatow as assistant sales manager. Mr. Flatow will be in charge of sales of Cicoil (oiticica oil) and castor oil in line with the company's program of expanded distribution.

. . . RUBBER PAINTS

(From Page 9)

settling of heavy particles like sulfur and fillers on standing. The use of Darvan in the dispersions is a great help, but it is usually necessary to keep such mixes agitated by suitable stirring equipment during use. Sometimes a small addition of a thickening agent will help without increasing the viscosity greatly. Settling is much less of a problem with viscous mixes.

Creaming is the slow rising of rubber globules to the top of the mixture forming a more concentrated stratum, or cream. It occurs in both uncompounded or compounded latex on standing, and it may be hastened by the presence of certain organic materials such as Karaya gum.

Often it is desirable to increase the viscosity of the latex mix. This may be done for the purpose of improving the quality of the mix. By increasing the viscosity of the latex mix, settling out of the filler ingredients are retarded. Gelatin, Karaya gum and Ammonium alginate are frequently used. Karaya gum is probably the best material to use. One-half to 1% being sufficient where 2 to 4% of alginate would be required to produce the same result.

Karaya gum is slightly cheaper. To dissolve Karaya gum in water, moisten it first with alcohol. This causes it to become soft. Then add water with thorough stirring until a thick, smooth syrup is obtained. The syrup may then be added to the latex mix. From 0.25 to 2.00% of the rubber content is commonly used for ordinary thickening purposes with a normal latex.

Protective Colloids

PROTECTIVE colloids are used for purposes of stabilizing latex mixes, and are sometimes added to water dispersions of filler ingredients to the latex. These protective colloids will tend to prevent coagulation or agglomeration of the rubber particles of the latex and also increase the resistance of the mix to mechanical coagulation. The main agents used are casein and soaps. Casein is usually considered a better material than soap, and may be used in proportions up to 2% on the rubber. Soaps reduce the waterproofness of the subsequent rubber film of a paint. At the same time, they also tend to upset the equilibrium of a compounded latex, due to the influence of the degree of polarity of the metal in the soap. Casein must be added as a water solution with ammonia. A suitable recipe is as follows:

Casein	70.0 grams
28% Ammonia	7.0 cc.
Water	73.0 cc.

The casein should be soaked in the ammonia solution cold for 10 minutes, then warmed for 10 minutes at 150° F (65° C). To prevent casein solutions from putrefying, add 0.2% of thymol or B-naphthol based on the amount of casein present, providing the casein solution is not immediately added to the latex.

Wetting Agents

WETTING agents are usually organic substances used to decrease the surface tensions of latex mixes, so that they can be effectively employed in brushing or spraying as paints. The lowered surface tension increases the power of the latex to wet surfaces, especially concrete or metal. A number of wetting agents are in use, among which may be mentioned certain soluble alkyl naphthalene sulfonates, Turkey red and soaps. Indeed the list is too great to mention. However, each compounder will carefully select the proper wetting agent that will not eventually upset the equilibrium of the entire formulated group of ingredients to be added to the latex. About 1% of the wetting agent calculated on the total liquid containing 30 to 40 per cent of total solids is the amount usually employed.

Frothing frequently occurs in both water dispersions of ingredients and in latex mixes. In making water dispersions, it may be necessary at times to decrease the time of ball mill grinding of the filler dispersions, or by changing the size of the pebbles, and the size of the charge. Frothing will occur when soaps are used as the medium for protective colloid in dispersions of latex mix. The best way to overcome this difficulty is to use Darvan instead of a soap, since there are no active metallic ingredients in Darvan to cause extreme surface tension which results in frothing.

Latex mixes will thicken on standing. It is frequently a source of trouble particularly in concentrations of 60% or higher. Thickening is probably due to a gradual agglomeration of the rubber particles, and it appears sometimes to be coincident with incipient vulcanization of the dispersed rubber.

Frequently, a little caustic soda will prevent thickening. However, this may be undesirable since the pH may be changed appreciably. Here, a casein dispersion could act as a good protective colloid and delay the spontaneous thickening upon standing of the compounded latex mix. It should be remembered to avoid as much as possible any metallic substances, either in the form of containers in which the compounded latex is to be packed, or mixing equipment in which it is to be produced. It is more suitable to mix the various compounded materials with latex in glass lined tanks and pack the finished product in crocks or glass containers. Metals tend to cause a premature vulcanization of the finished compounded latex than any other type of material. Avoid too much agitation. This may result in heat which will cause premature vulcanization. Too much can not be said on this score.

As far as the materials which go into a latex mix, the proportions used are fairly similar to those used in dry rubber work. As a rule the sulfur dosages are lower than those used in dry rubber, partly because they are very strong accelerators, and partly because latex rubber is tougher and stronger, thus needing less sulfur to harden or cure mechanically broken down rubber.

The use of antioxidants in latex mixes is just as important as it is in dry rubber mixes. An excellent type of antioxidant is Age-Rete Alba, which has been employed extensively with rubber latex. It is used in proportions of 0.75 to 1 per cent of the amount of rubber solids in the latex.

Manufacturing

SINCE the compounding of latex for water thinned paints involves the addition to the latex dispersions of ingredients which are solids ranging from 1 to 2 microns in size, it is essential that all ingredients be properly prepared before mixing with the latex.

In order to obtain an aqueous dispersion of many solids, it is necessary

to grind the material in water in the presence of a dispersing agent. This can be accomplished by the use of either a colloid or a pebble mill, or employing both to obtain an excellent reduced particle size of the solids to be added to the latex. It is customary in this case to pebble mill the solids or fillers first anywhere from 72 to 96 hours, and then finally pass them through a colloidal mill to get refinement in the breakdown of the solids to be added to the latex.

These mills are obtained from the various manufacturers according to type and size. The type of mill to be used will vary with the size of the latex batch and the total amount of ingredients to be added to it. The larger mills are more efficient from the standpoint of quantity of dispersion obtainable per unit of volume of mill, as is evident from the following approximate figures.

Capacity of Mill (in Gallons)	Amount of Dispersion (in Grams)
1.5	1000–1600
2.5	3600–4000
6.5	10,000–12,000

The following recommendations are offered in regards to procedure which will aid in obtaining the best results for the proper dispersion of solids in latex compounding.

As a rule the instructions as to speed, load and etc., as furnished by manufacturer of pebble mills are satisfactory. It is best to follow their instructions, and when in doubt, to have one of their field representatives call to adjust any difficulties that might arise with the proper functioning of the mill.

1. At all times employ a mixture of assorted sizes of pebbles.

2. Never fill a jar (pebbles included) more than three quarters full.

3. Keep viscosity of slurry or dispersion relatively low.

4. Have pebble jars rotate in such a manner so that pebbles fall freely.

5. A separate jar for each material saves money, time and often jars.

Compounding Ingredients

MANY of the compounding ingredients are dry powders, and as such are totally unfit for dispersion in latex. These must be dispersed in water to at least a paste, and it is usually advantageous to introduce them in the form of a dispersion which has a comparatively low viscosity.

It is difficult to prepare colloidal sulfur so that it will remain stable over a storage period. It is frequently prepared in a series of two or three mills, each being sufficient for one day's requirement. The mills are kept in rotation.

A typical formula for preparing colloidal sulfur consists of grinding the following mixture for 48–72 hours:

Sulfur	100 lbs.
Dispersing Agent	3 "
Water	97 "

The dispersing agent is a mixture of 2.5 pounds of casein and 0.5 pounds of ammonia.

Another good grade of colloidal sulfur may be prepared as follows:

Sulfur	100 lbs.
Dispersing agent	6 "
Water	44 "

The dispersing agent may be Darvan or Vultamol. This is ground for 96 hours. Darvan is produced by R. T. Vanderbilt Co., and Vultamol by Advance Solvents Corp.

After about 96 hours grinding, remove from the mill and weigh. Each 100 pounds of wet dispersion contains 66 pounds of sulfur, and requires 22 pounds of water to reduce this dispersion to 50% sulfur content.

In 18 pounds of water and one pound of ammonia disperse 3 pounds of Bentonite. Add this to the sulfur dispersion and mix thoroughly. This will produce a relatively stable colloidal sulfur and the small quantity of Bentonite will not cloud even the most transparent film. Instead of Bentonite it is possible to use locust bean gum, or gum Tragacanth to stabilize the colloidal sulfur. In this case, 20 pounds hot water, 1 pound 4 ounces locust bean gum (or gum Tragacanth), and 12 ounces formaldehyde replacing the Bentonite mixture described above, is added to the sulfur dispersion and thoroughly mixed.

For colloidal zinc oxide, tests have shown that it is better to use a zinc oxide with medium particle size than one more finely divided. A zinc oxide with low water adsorption should be chosen, as it is wetted more easily and produces a better dispersion. A dispersion which may be stored from 6 to 8 weeks with only a slight settling is prepared by grinding the following materials for 24 hours:

Zinc Oxide	100 lbs.
Gum Arabic	1 "
Water	99 "

Any slight settling which may have occurred is easily redispersed.

A colloidal dispersion of zinc sulfide may be prepared using the above formula and procedure.

Carbon black is a good reinforcing agent in dry rubber, but in latex it acts only as a diluent, increasing quantities giving poorer physical properties. The regular grades of carbon black (channel process) are acidic, and unless given special preparation and treatment will thicken and coagulate latex. The soft blacks are practically inert in their thickening or coagulating effects. Carbon black is used for its color value only, and since it acts as a diluent it is desirable to use a black of high color value and one that disperses easily. A carbon black having a low water adsorption gives best pebble mill dispersions, and also dispersions containing the highest carbon black content.

A low water adsorption carbon black may be dispersed as follows:

Carbon Black (low water adsorption)	100 lbs.
Darvan or Vultamol	5 lbs.
Water	392–492 lbs.
Ammonia	3 lbs.

Ordinary rubber grades are formulated as follows:

Carbon black	100 lbs.
Darvan or Vultamol	5 "

The above formula may be used for ordinary carbon blacks.

For soft blacks, the following formulation is offered:

Soft black	50 lbs.
Darvan or Vultamol	2 "
Water	48–98 lbs.

The use of clay in latex is limited because it increases the stiffness and dryness of the rubber stock. The clays used in regular rubber compounding thicken the latex mix, and are so water adsorbent that they are difficult to disperse without using an excess of water. However, the non-reinforcing clays such as are used in the paper trade have a low water adsorption.

Due to the large quantities of clay used in comparison to the zinc oxide, sulfur, etc., pebble milling costs are prohibitive and it is generally added as a slurry prepared with a high speed agitator. When a better dispersion is required these slurries may be passed through a paint mill or colloid mill.

Since clays vary in their water adsorption, it is difficult to obtain one formula that will be satisfactory. Hence the formula given below may have the water content adjusted for the respective clay to produce a smooth slurry of proper viscosity for latex compounding:

Clay	100 lbs.
Darvan or Blancol	2 "
Water	100 "

Whiting is used only as a diluent, and since it may be used in large quantities without stiffening the rubber, its use will help to decrease the cost of a latex product. Good grades of whiting produce good results when made up into a slurry with water under a high speed stirrer. Pebble milling is possible but when large quantities are used the cost is almost prohibitive. A pebble mill formula follows:

Whiting	100 lbs.
Darvan, Blancol or Vultanol	5 "
Water	45 "

This dispersion forms a heavy paste on standing but thins out on agitation. When a cheap mix with high specific gravity is required, blanc fixe is a desirable ingredient. Slurries under a high speed stirrer may be prepared as follows:

Blanc fixe	100 lbs.
Darvan or Vultanol	2 "
Water	23 "

Good pebble mill dispersions may also be prepared from:

Blanc Fixe	100 lbs.
Darvan, Blancol or Vultanol	2 "
Water	48 "

Blanc fixe dispersions settle out rapidly and should be prepared as needed. The latex compound in which they are used should also be of high viscosity or kept well agitated.

As noted above, fillers are merely diluents in latex compounding, and are used to reduce the cost of the ultimate product. This reduction in cost is questionable, because unless a large quantity of filler is used the saving is negligible, while large amounts of filler impair the physical properties of the latex rubber.

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Erwin Representing Goodyear

Howard R. Erwin, former technical superintendent of the Goodyear Synthetic Corporation plant at Torrance, California, has been named special representative of the Chemical Divison of the Goodyear Tire & Rubber Company. Mr. Erwin has been assigned to the Cleveland district, according to H. R. Thies, Chemical Division manager.

A graduate of Iowa State College, Mr. Erwin is a member of the American Chemical Society, the American Institute of Chemical Engineers and is affilated with Buffalo, Akron and Los Angeles rubber groups.

Parrett and Giebel of DuPont Pigments Retire

The retirement on pension of Robert A. Parrett and Carl D. Giebel, of the Cleveland, Ohio, pigments sales office of the DuPont Company, was announced recently. Both men have been in pigments sales work in the Cleveland area for many years.

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Glos to Head Hilton-Davis Analytical Laboratory

Arthur F. Glos has been named head of the analytical laboratory of the Hilton-Davis Chemical Co., Cincinnati, Ohio. Mr. Glos was formerly in charge of the pigment research and raw material testing for the pigment department.

PATENTS

Conducted by

Lancaster, Allwine & Rommel

PATENTS AND COPYRIGHTS

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Plasticized Cellulose Derivatives

U. S. Patent 2,495,714. Alexander G. Geiges, deceased, Late of East Orange, N. J., by Alice S. Geiges, administratrix, East Orange, N. J., assignor to The Baker Caster Oil Co., Jersey City, N. J., a corporation of New Jersey.

A plasticized composition of matter suitable for use in coating, sheeting, molding, and impregnating operations comprising a cellulose derivative selected from the group consisting of nitrocellulose, cellose acetate, cellulose proprionate, cellulose butyrate, cellulose acetostearate, cellulose acetomalate, cellulose nitroacetate, ethyl cellulose, butyl cellulose and benzyl cellulose, and, as a plasticizer for said cellulose derivative, a viscous, oily diester of a polyhydric alcohol having at least four hydroxyl groups and of an unsaturated aliphatic, monobasic acid containing more than 9 carbon atoms and more than one double bond per molecule.

Cellulose Derivatives

U. S. Patent 2,495,232. Nicolas Drisch and René Fays, Paris, France, assignors to Comptoir des Textiles Artificiels, a corporation of France.

A cellulose derivative in which the molecular chains of cellulose are chemically united by resinified bridge linkages formed by the reaction of hydroxyl groups of the original material from which the derivative was obtained with a nonresinous polymethylolphenal reagent consisting essentially of a trimethylolphenol.

Pump System

U. S. Patent 2,495,571. George C. Davis, Oak Park, Ill., assignor to Davis Regulator Co., Chicago, Ill., a corporation of Illinois.

A liquid-containing reservoir, a conduit so positioned and connected as to receive liquid flowing under the influence of gravity therefrom, a valve adapted selectively to open and close the conduit, a float chamber in connection with the conduit between the valve and the reservoir, a float in the chamber, a connection between the valve and the float adapted normally to hold the valve open and to close the valve when the level of the liquid in the chamber reaches a predetermined minimum, a pump and means for driving it, a suction conduit between the pump and the valve, a control device communicating with the suction conduit between the pump and the valve adapted to stop the operation of the pump when the pressure in the suction conduit reaches a predetermined minimum.

Thiophene-Styrene Polymer

U. S. Patent 2,469,669. Jacob R. Meadow, Lexington, Ky., and Arlie A. G'Kelly, Woodbury, N. J., assignors to Socony Vacuum Oil Co., Inc., a corporation of New York.

The process of manufacturing synthetic resins, which comprises contacting thiophene with styrene, in amounts falling within the range of mole ratios of styrene to thiophene of 1–3:3–1, respectively, in the presence of hydrogen fluoride in amounts falling within the range varying between 1% and 25% based on the weight of thiophene.

Carbohydrate Gums

U. S. Patent 2,469,670. Owen A. Moe, Minneapolis, Minn., assignor to General Mills, Inc., a corporation of Delaware.

A dihydroxypropyl ether of a gum selected from the group consisting of glucomannan and galactomannan gums.

Ethylene-Vinyl Copolymer

U. S. Patent 2,497,291. Marlin M. Brubaker, Boothwyn, Pa., John R. Roland, Wilmington, Del., and Merlin D. Peterson. Oak Ridge, Tenn., assignors to E. I. du Pont de Nemours & Co., Wilmington, Del., a corporation of Delaware.

A solid ethylene/vinyl chloride polymer containing 74% to 90% by weight of combined vinyl chloride, copolymerized with correspondingly from 26% to 10% by weight of combined ethylene, said polymer being soluble in an aromatic hydrocarbon solvent to the extent of at least 20% by weight.

Linear Polyesters

U. S. Patent 2,496,933. John R. Caldwell, Kingsport, Tenn., assignor to Eastman Kodak Co., Rochester, N. Y., a corporation of New Jersey.

A method of preparing a linear polyester which comprises heating a mixture of 0.8–0.4 mol. of hydroquinone, 0.2–0.6 mol. of a saturated aliphatic glycol containing only C, H and O and having glycol hydroxyl groups as the only reactive groups therein, a dicarboxylic acid selected from the group consisting of succinic, glutaric, adipic, pimelic, suberic, azelaic, sebacic and dimerized oleic acid and acetic anhydride, the dicarboxylic acid being in an amount sufficient to esterify the hydroquinone and the glycol and the acetic anhydride being in an amount greater than that of the dicarboxylic acid, until acetic acid begins to distil from the mass and continuing the heating until 70–80% of the theoretical acetic acid distils therefrom.

Acrylic-Butadiene Copolymers

U. S. Patent 2,496,935. Albert M. Clifford, Stow, Ohio, assignor to Wingfoot Corp., Akron, Ohio, a corporation of Delaware.

Copolymers comprising terpinyl methacrylate interpolymerized with butadiene-1,3 in which the ester and butadiene are each present to the extent of at least 25 per cent of the copolymer.

Polychloroprene

U. S. Patent 2,493,798. Harry H. Abernathy, Wilmington, and George W. Scott, Claymont, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Delaware, a corporation of Delaware.

A process for producing polychloroprene latices which are particularly suitable for the impregnation of paper, as blending agents for conventional polychloroprene latices and for the production of films which have a low modulus of elasticity and which are resistant to hardening during storage, which comprises polymerizing in an alkaline aqueous emulsion and in the presence of a chloroprene polymerization catalyst chloroprene containing from 16 parts to 120 parts per 100 parts of chloroprene of a rosin ester obtained from an alcohol containing not more than 5 carbon atoms and not more than 4 hydroxyl groups, a water soluble salt of a rosin acid being employed as the emulsifying agent in an amount in parts by weight of not less than one-twentieth of the number of parts of rosin ester present in the latex per 100 parts of chloroprene plus 3.5 parts and not greater than 15% of the total weight of the chloroprene and rosin ester employed.

Condensation Products

U. S. Patent 2,490,927. Raymond J. Spahr and David J. Lieb, Bainbridge, N. Y., assignors to The Bordon Company, New York, N. Y., a corporation of New Jersey.

A water soluble resinous product produced by the condensation of resorcinol with formaldehyde in the proportion of 0.5 to 0.73 mol of formaldehyde per mol of resorcinol and containing 10 to 100 parts of a water soluble polyhydroxy alkane per 100 parts by weight of resorcinol, said polyhydroxy alkane having not more than six carbon atoms and said condensation being effected by adjusting to a pH between 6.2 and 7.5 with a non-volatile alkali, a mixture containing the resorcinol and formaldehyde and heating the adjusted mixture to a temperature between 80 to 100° C. until the mixture undergoes no further change in viscosity.

Insecticidal Compostion

U. S. Patent 2,497,294. Leonard C. Cartwright, New York, N. Y., assignor to Foster D. Snell, Inc., a corporation of New York.

A liquid composition suitable for use in forming a hard non-tacky insecticidal film comprising 2,2-bis(p-chlorophenyl) 1,1,1-trichlorethane serving as the insecticide, a water insoluble cellulose ether of an aliphatic alcohol containing 2 to 4 carbon atoms to the molecule serving as hardening agent, a resin selected from the group consisting of coumarine-indene resin, terpene resin, ester gum, polymerized ester gum and maleicized ester gum, and a volatile solvent medium for the insecticide, hardening agent and resin, proportions by weight of the non-volatile ingredients being 0.5 part to 2.5 parts of the resin, 0.1 to 0.5 part of the cellulose ether and 5 parts of the insecticide.

Luminescent Materials

U. S. Patent 2,497,140. James H. Schulman, Cambridge, Mass., assignor to Sylvania Electric Products, Inc., Salem, Mass., a corporation of Massachusetts.

The process of preparing a manganese activated silicate phosphor selected from the group consisting of zinc orthosilicate, zinc beryllium silicate, magnesium orthosilicate, cadmium silicate and calcium silicate which comprises disposing the components thereof, in the solid state, in the proportions necessary to form the phosphor, in an enclosed chamber; disposing at least one compound selected from the group consisting of $CdCl_2$, $ZnCl_2$, HgCl, $PbCl_2$, PbF_2, PbO, and with about 10% by weight of 2-ethylhexyl alcohol at a temperature of about 230° to 280° F. for a period of about 4 hours.

Urea-Formaldehyde

U. S. Patent 23,174. Hamline M. Kvalnes, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware.

A process for the preparation of liquid urea-formaldehyde compositions which comprises preparing a liquid mixture from gaseous formaldehyde and water at a temperature of from 60° to 90° C., the weight of the formaldehyde being from 50% to 70% of the weight of the resultant aqueous liquid mixture, keeping the temperature of the said aqueous liquid continuously at 60° to 90° C. until the said liquid is brought into contact with urea, admixing urea with the said liquid in the presence of a buffer which maintains the pH within the range of 7.0 to 9.0, the amount of the said urea being in the proportion of one mol per 4.5 to 7 mols of the said formaldehyde, and maintaining the temperature of the resultant liquid at least momentarily at from 70° to 90° C. whereby a product which remains a clear liquid when cooled to 25° C. is obtained.

A clear, permanently stable, liquid unpolymerized urea-formaldehyde composition containing a buffer which maintains the pH at from 7.0 to 9.0, said composition being characterized in that it has a total formaldehyde:urea mol ratio of from about 4:1 to 6:1, and a ratio of combined to free formaldehyde of from 1:1 to 3:1, said composition having been prepared in accordance with the process above.

Styrene Emulsion Polymerization

U. S. Patent 2,496,864. Edmond F. Fiedler, Adams, and Glennard R. Lucas, Pittsfield, Mass., assignors to General Electric Co., a corporation of New York.

The method of producing a crystal-clear polystyrene free of dicoloration and having a heat distortion temperature of at least 90° C., which method comprises heating an emulsified mass comprising (1) styrene, (2) water, (3) an alkali-metal hydroxide sufficient to neutralize at least 85 per cent of the fatty acid component of (4), (4) a fatty acid component selected from the class consisting of (*a*) myristic acid, (*b*) palmitic acid, (*c*) stearic acid, and (*d*) mixtures of saturated aliphatic monocarboxylic acids having an even number of carbon atoms and containing from 12 to 18 carbon atoms whose average molecular weight is equal to from at least 210 to less than 284, said fatty acid component being present in an amount equal to from 0.3 per cent up to and including 1 per cent, by weight, based on the weight of the styrene, and (5) a polymerization catalyst comprising 1-hydroxycyclohexyl hydroperoxide-1.

Lignin Resins

U. S. Patent 2,494,545. Raymond Norris Evans and Angelo Ingrassia, Laurel, Miss., assignors to Masontie Corporation, Laurel, Miss., a corporation of Delaware.

Process of preparing a water, acid, and alkali resistant, hard resinous material which comprises dissolving alkali soluble lignin and partially polymerized furfuryl alcohol in a common solvent chosen from the group consisting of monoalkyl ethers of ethylene glycol, diethylene glycol, ethers of diethylene glycol and tetrahydrofurfuryl alcohol to form a solution, said components being the only reactive materials present, heating the materials to react the lignin and partially polymerized furfuryl alcohol, and removing the solvent whereby a hard resinous material is formed, the weight of said lignin being between 5 and 60% of the total weight of the lignin and the partially polymerized furfuryl alcohol.

Fumarate-Styrene Copolymer

U. S. Patent 2,493,948. Richard E. Davis, Plainfield, and Amos Raymond Esterly, Metuchen, N. J., assignors to Catalin Corporation of America, a corporation of Delaware.

The method of making a copolymer of diallyl fumarate and styrene which comprises forming a mixture consisting of diallyl fumarate, styrene and an organic peroxide serving as an accelerator of copolymerization, the proportion of the fumarate being 17 to 80 parts by weight for 100 parts of the combined weight of fumarate and styrene, warming the mixture to a temperature of at least approximately 60° C. until copolymerization is carried to the point of substantial shrinkage and thickening of the original liquid mixture and just short of gelation, so as to produce a preshrunk liquid product of consistency suitable for casting, and then pouring the thus preshrunk material into a mold and polymerizing the poured material at a temperature of approximately 60° C. to 110° C. to form a solid at room temperature.

Electrical Paint Remover

U. S. Patent 2,497,535. Frank Carlino, Buffalo, New York.

An electrically heated paint remover comprising a shallow casing with the under side open, a heating element suspended in the upper part of the casing, and a perforated grid spaced from and positioned below the said heating element with a sharp scraping edge integral therewith and extending downwardly to a plane corresponding with the lower surface of the casing.

Butadiene-Styrene Copolymer

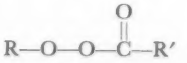
U. S. Patent 2,497,458. Stewart S. Kurtz, Jr., Merion, Pa., assignor to Sun Oil Co., Philadelphia, Pa., a corporation of New Jersey.

A composition of matter comprising a mixture of a preponderant proportion of a synthetic rubber, made by polymerization of a mixture consisting essentially of butadiene and styrene, and a minor proportion, effective to impart tack thereto, of a tacky, elastic tackifier copolymer product derived by polymerization, at a temperature of from about –40° C. to about –160° C. with the aid of a Friedel-Crafts type catalyst, of a monomeric mixture comprising from about 50 to about 70 parts by weight of an iso-mono-olefin of 4–6 carbon atoms having a double bond in the alpha position and a side chain in the beta position, from about 10 to about 30 parts by weight of an aliphatic 1,3 conjugated diolefin and from about 20 to about 30 parts by weight of styrene.

Polymerization of Ethylene

U. S. Patent 2,497,323 Milton J. Roedel, Wilmington, Del., assignor to E. I. du Pont de Nemours & Co., Wilmington, Del., a corporation of Delaware.

The process for polymerizing ethylene which comprises heating ethylene at a temperature of 70° to 250° C. in the presence of 0.005% to 2.0%, based on the total weight of the reaction mixture, of a tertiary alkyl percarboxylate of the formula



wherein R is a tertiary alkyl group and R′ is a member of the class consisting of aryl hydrocarbon radicals, the number of carbon atoms in R′ being not greater than 20, under a pressure above 25 atmospheres.

Oxygenated Organic Polymers

U. S. Patent 2,497,315. Donald J. Loder and William F. Gresham, Wilmington, Del., assignors to E. I. du Pont de Nemuors & Co., Wilmington, Del., a corporation of Delaware.

A process for the preparation of solid polymers from glycols and 1,3-dioxolane containing at least two groups having the structure $—CH_2OCH_2CH_2O—$ which comprises reacting in solution under substantially anhydrous conditions from about 48 to 740 parts by weight of 1,3-dioxolane per part by weight of a glycol containing up to and including 8 carbon atoms in the presence of at least 0.001% by weight of an acidic catalyst, after the solid polymer has been formed neutralizing the catalyst and thereafter recovering the polymeric products.

Carboxylic Acid Anhydride

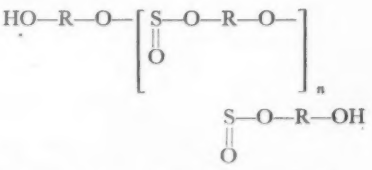
U. S. Patent 2,479,304. William F. Gresham and Richard E. Brooks, Wilmington, Del., assignors to E. I. du Pont de Nemours & Co., Wilmington, Del., a corporation of Delaware.

A process for the synthesis of carboxylic acid anhydrides which comprises reacting under anhydrous conditions a carboxylic acid of the formula RCOOH, R being an alkyl group, with a hydrocarbon containing non-aromatic monoolefinic unsaturation, and carbon monoxide, at a temperature within the range of 200° to 500° C., under a pressure of 25 to 2000 atmospheres, in the presence of a nickel-containing catalyst of the class consisting of nickel carbonyl and substances which produce nickel carbonyl under the conditions of the reaction, whereby a reaction product containing organic carboxylic acid anhydride is produced and thereafter separating the said organic carboxylic acid anhydride from the resulting mixture.

Sulfurous Acid Ester Polymers

U. S. Patent 2,497,135. William J. Myles, Summit, and John H. Prichard, Springfield, N. J., assignors to Celanese Corporation of America, a corporation of Delaware.

A polymeric polyhydroxy alcohol ester of sulfurous acid having the following structure:



wherein *n* is an integer no greater than 15 and R is a saturated straight chain containing at most carbon, hydrogen and oxygen and at least four and at most ten carbon atoms and is the divalent residue normally linking the hydroxy groups of a polyhydroxy alcohol.

Propylene Glycol Esters

U. S. Patent 2,479,408. William F. Gresham, Wilmington Del., assignor to E. I. du Pont de Nemours & Co., Wilmington, Del., a corporation of Delaware.

A process for the preparation of propylene glycol monoacetate and propylene glycol diacetate which comprises acting on acetic acid and propylene with an oxidizing gas at a temperature between 100° and 350° C., and under a pressure of at least 400 pounds per square inch in the presence of a mixed catalyst of an acetate of an alkaline earth and of an acetate of a heavy metal of the group consisting of lead and ferric iron.

Polymeric Polyamines

U. S. Patent 2,495,255. Harvey H. Hoehn, Hockessin, Del., assignor to E. I. du Pont de Nemours & Co., Wilmington, Del., a corporation of Delaware.

A polymeric polyamine which is the reaction product of the reductive-amination of a polymer of a monoolefin containing from 2 to 4 carbon atoms with carbon monoxide in which the mole ratio of monoolefin to carbon monoxide is from 150:1 to 1:1, said polymeric polyamine having a main carbon chain and amino-nitrogens attached solely to members of the class consisting of hydrogen and hydrocarbon as lateral substituent groups with the nitrogen thereof directly attached to a carbon atom which is an integral part of said main carbon chain.

Fatty Esters

U. S. Patent 2,494,366. Francis J. Sprules, Arlington, N. J., and Donald Price, New York, N. Y., assignors to Nopco Chemical Company, Harrison, N. J., a corporation of New Jersey.

In a process for producing alkyl esters of fatty acids, the steps comprising transesterifying fatty materials having acid values of at least one by contacting said fatty materials with at least two moles of a monohydric alcohol per fatty acid equivalent, said monohydric alcohol containing from one to eight carbon atoms, in the presence of a sufficient amount of an alkaline catalyst to neutralize the free fatty acids in the fatty material and provide a slight excess of alkaline material to serve as the transesterification catalyst, heating the mass for a short time to effect transesterification, adding a sufficient amount of an acid catalyst to split the soaps in the reaction mass, neutralize the alkaline catalyst in the reaction mass, and provide a slight excess of acidic material to serve as an esterification catalyst, and then esterifying the free fatty acids in the reaction mass with the monohydric alcohol present therein by further heating of the mass.

NEW PRODUCTS & IMPROVEMENTS

A MONTHLY MARKET SURVEY

Emil Greiner

VISCOSIMETER

Continuous Operation

This potentiometric viscosimeter is designed for the measurement of thixotropic, gel or polymerizing substances.

Eliminating the use of mechanical clutches and linkages, it may be employed in laboratory research or continuous plant operation. It can also be used in conjunction with any potentiometric recording devices.

When used for gel-time studies, this electrical viscosimeter provides automatic stop at maximum deflection. There is an additional outlet for intermittent timer when used in studies of thixotropic or congealing substances. Emil Greiner Co., 20–26 N. Moore St., New York, N. Y. PVP—April.

PLATFORM TRUCKS

With 360 deg. Turret

Loads weighing up to 3500 pounds may be removed horizontally by special platform truck constructed in palletized, skidded or manually-handled models. The Knickerbocker Co., Jackson, Mich. PVP—April.

FORK TRUCKS

Capacity of 3,000–4,000 Lbs.

Type FT, center control fork truck is being offered for 3,000 to 4,000 capacities.

According to the manufacturer, their engineers were instructed to omit all unnecessary frills and to include only those features that would contribute to efficiency, economy, safety, and operator convenience and comfort. Baker Industrial Truck Div., The Baker-Raulang Co., 1250 W. 80th St., Cleveland 2, Ohio. PVP—April.

Baker

FLOOR LOCK

For Portable Equipment

A low-cost floor lock for portable elevators, conveyors, and floor trucks is now available. Constructed of steel and arc-welded, this lock is engineered to give long, low-cost service on many types and makes of portable equipment.

Inquiries regarding this floor lock may be directed to The Rapids-Standard Company, Inc., Dept. FL, 342 Rapistan Building, Grand Rapids 2, Michigan. PVP—April.

PEARLESCENT PIGMENT

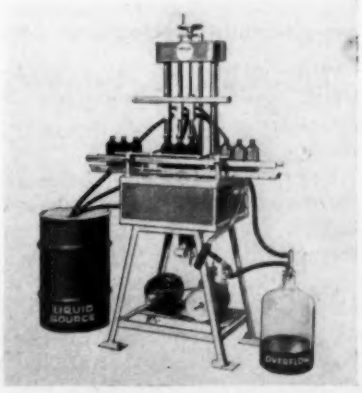
Concentrated Form

Pearlescent pigments consisting of white minute crystalline particles are supplied in concentrated form for use in coating vehicles. This pigment may be used to produce lustrous finishes, such as pearl, porcelain, pottery, gunmetal, hammertone, etc. Shuman Chemical Products, Inc., 58 John Hay Ave., Kearny, N. J. PVP—April.

LIQUID FILLING MACHINE

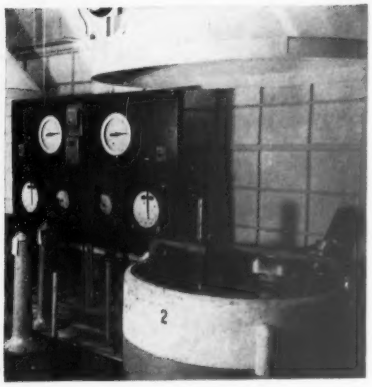
Semi-automatic

Low cost, semi-automatic vacuum liquid filling machine known as the "Model-A," was designed to meet the increasing demand of companies who do not have the need for larger, high production models and who are interested in a small, economical filling machine. Packers who find it necessary to make frequent changes of container sizes and liquids to be filled may find a need for this model. It incorporates the best features of the larger Packer models and all parts are precision made. Packer Machinery Corp., 30 Irving Place, New York 3, N. Y. PVP—April.



Packer Machinery

NEW PRODUCTS



Minneapolis-Regulator

VISCOSITY INDICATOR

Range 20–100,000 cps.

Continuous accurate indicating and recording of the viscosity of hundreds of industrial liquids while under actual processing has been made possible by a new instrument.

The new device, known as a Visco-MaT, was announced jointly by the Brookfield Engineering Laboratories, Inc., and Brown Instruments division of Minneapolis-Honeywell Regulator Company. This instrument is particularly adaptable for use in the chemical, paper, plastic and varnish industries where constant viscosity is important. In addition to indicating and recording viscosity, the viscometer when used with an ElectroniK recorder can be used as an automatic controller with built-in audible or visual alarms. Minneapolis-Honeywell Regulator Co., Wayne Pa. PVP—April.

ALKYD RESIN

Non-penetrating Properties

A new alkyd resin is said to impart a high degree of non-penetration in flat and semi-gloss wall paints and allied applications.

Full laboratory and field-testing programs, according to the manufacturer, indicate that the new resin, designated as Plaskon 3186, excels in brushability, sag-resistance, color retention, washability and economy as well as its prime characteristic—non-penetration. Plaskon Div., Libbey-Owens-Ford Glass Co., Toledo, Ohio. PVP—April.

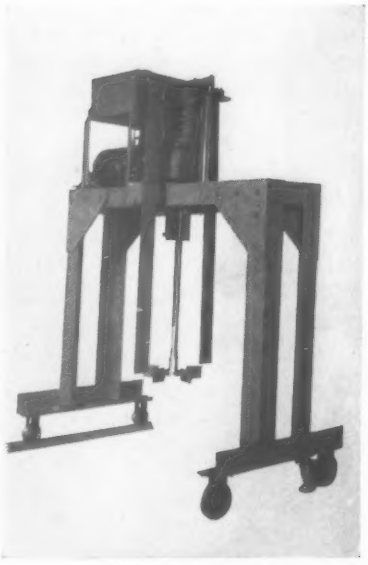
HEAVY-DUTY AGITATOR

Serves Row of Tanks

A new heavy-duty liquid agitator, specially developed for the paint industry, mixes as much paint in one hour as can be mixed in a full day by ordinary means.

This unit, now being tested by a large paint producer can be moved from one tank and inserted in the next. Operating tests indicate that the new agitator will handle the tinting process in one-eighth to one-sixth the time formerly required, according to the manufacturer. Comparable results are predicted for similar processes using a number of tanks.

The unit is supplied in capacities up to 4.5 h.p. at the impeller. The manufacturer recommends and supplies the correct electric motor and impeller size for the individual application. Shaft, impeller and baffles can be furnished in a wide variety of metals to suit individual process requirements. For complete information, address Mixing Equipment Co., Inc., 1024 Garson Ave., Rochester 9. N. Y. PVP—April.



Mixing Equipment

SEBACIC ACID

Two Grades

Two grades of Sebacic acid, purified and C.P., are now being produced in tonnage quantities. The Hardesty Chemical Co., 41 E. 42nd St., New York 17, N. Y. PVP—April.

EXTINGUISHER DECAL

Identifies Type to Use

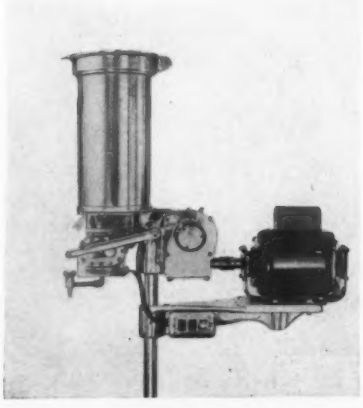
To help identify and locate the proper fire extinguisher in a hurry, the Meyercord Co., decalcomania manufacturer, has developed three unusual new decal sets for positive selection of three types of extinguishers for fires of: 1) wood, paper, rubbish; 2) electric, gas, chemical; and 3) of any origin except electrical.

The decal selection sign for fires of wood, paper, or rubbish origin has black and yellow diagonal bars. For electric, chemical or gas fires, the identifying design has red and white horizontal bars. The third decal was developed to identify foam type fire extinguishers, which are suitable for any but electrical fires. This pattern employs red and white horizontal bars cut diagonally by a combination yellow and black stripe. Meyercord Co., 333 N. Michigan Ave., Chicago 1, Ill. PVP—April.

METERING PUMP

Fifty Ranges

Based on the principle that the discharge of the gear pump is proportional to the face width and to the angular displacement of the gears, this metering pump combines both features in order to obtain a variable discharge. The selection of the width of the gear face depends upon the metering range required, while the magnitude of the angular displacement of the gears determines the amount of fluid to be metered within the metering range. Edward E. Robinson, Inc., 95 Park Ave., Nutley 10, N. J. PVP—April.



Edward E. Robinson

NEW PRODUCTS

ORGANIC DERIVATIVE
Variety of Use

Cetol, a resin chemical intermediate, may undergo a large variety of reactions to produce products with a wide range of properties and characteristics. Alone, it may be used as a solvent for paint and varnishes. Polymers made from this material show possibilities for use in coatings, black finishes, tars, impregnants, etc. According to the manufacturer, Cetol is a blend of organic derivatives made from extracts of various vegetable materials.

Resinous materials are formed with maleic anhydride, phenols and urea. Mineral acids, acid-metallic chlorides and sodium hydroxide may be used as catalysts in producing various polymeric forms of this material. For further information concerning this chemical, write to Process Chemical Specialties, P.O. Box 345, Beverly, Mass. PVP—April.

FILTER CLOTHS
Nylon, Orlon, Vinyon N Types

Filter cloths made of synthetic materials may be tailored to fit any rotary vacuum or pressure filter or filter press. Nylon cloth is unaffected by most alkalies and organic acids, and common solvents. Orlon is recommended for strong mineral acids, common solvents, oils, greases and acid solids. Vinyon N will resist all acids alkalies and most solvents. Filtration Fabrics Div., Filtration Engineers, Inc., Newark, N. J. PVP—April.

HAND TRUCK
Adjustable Type

According to the manufacturer, the outstanding feature of this hand truck is the two chime hooks, which are adjustable, to lock barrels and kegs of different heights securely in position. Truck is finely balanced so that most of the load is carried on the wheels, thus making it easy to use and handle. General Scientific Equipment Co., 27th & Huntingdon St., Philadelphia 32, Pa. PVP—April.

SURFACE-ACTIVE AGENTS
For Dispersing High Polymers

The "Hypodynes" comprise dispersing and surface-active agents which are acid esters of select polybasic acids and their respective amine salts. They are recommended by the manufacturer as a dispersing agent for polymers of high polarity. They have also been found to lower surface tension. The dispersive abilities of these agents have been utilized to alter the flow characteristics of the vinyl dispersions, paint pigment concentrates and to solubilize high molecular weight organic materials which otherwise have proved insoluble in a wide variety of solvents. The unsaturated nature of the compounds makes them especially attractive in formulations of film-forming materials, such as drying oils, alkyd and other polymeric synthetics, according to the manufacturer. Ferro Chemical Corp., P. O. Box 76, Bedford, Ohio. PVP—April.

STABILIZER
For Vinyls

A heat and light stabilizer which is said to be effective for vinyl films is sold under the trade-name, Stabilizer #52. The product is an organic tin compound and is used at the rate of 2 to 3%, based on the resin content. Advance Solvents & Chemical Corp., 245 Fifth Ave., New York 16, N. Y. PVP—April.

NEW PRODUCTS

WATER BATH
Won't Boil Dry

Laboratory water bath unit is equipped with 2 inmersion heaters and provides capacity for various sizes of flasks and up to 14 test tubes. It contains a bottle-feed device which prevents the bath from boiling dry for as long as 10 hours on low heat and 4 to 5 hours on high heat. Constructed of monel on the exterior and copper on the interior for resistance to corrosion. Fisher Scientific Co., 717 Forbes St., Pittsburgh, Pa. PVP—April.

ALUMINUM DRUMS
For Corrosive Chemicals

Aluminum drum designed for nitric acid, hydrogen peroxide, acetic acid, glycerine, alcohols, fatty acids are available in 15.5 to 55 gallon capacities and meet Consolidated Freight or ICC classifications. The 15.5 gallon type is constructed of heavy base aluminum alloy with interior cladding of pure aluminum and weighs 26 lbs. Kaiser Aluminum & Chemical Sales, Inc., 1924 Broadway, Oakland 12, California. PVP—April.

IMMERSION HEATER
Screw-plug Type

Controlled screw-plug immersion heaters heats chemicals and oil solutions such as tar, paraffin, asphalt, and solvents. It is equipped with a thermostat which has a range 60 degrees to 250 degrees F. for water-type of solutions, 200 degrees to 550 degrees F. for oil and other viscous compounds. Edwin L. Wiegand Co., Pittsburgh, Pa. PVP—April.

PROPYLENE GLYCOL
Esterifying Agent

Propylene glycol is now available for use as an esterification agent or a modifying additive in resin production. It exhibits mutual solvency for water and many organic solvents. Propylene glycol is a water-white fluid with a boiling point of 188.2° C. It is also non-toxic. Celanese Corp., 180 Madison Ave., New York 16, N. Y. PVP—April.

CONTROL INSTRUMENTS
Air-operated

A new line of air-operated control instruments, known as the Series 500 Controllers, are available. Included are controllers for automatically controlling temperature, pressure, flow, liquid level, humidity, and pH value. The new controllers have calibrated control actions. Reset, rate derivative time, and proportional band adjustments are accurately calibrated and reproducible. They have only one service adjustment. Controllers can be completely disassembled and after being reassembled, with replacement parts, only one adjustment is required to put the system in exact calibration. All series 500 Reset Controllers are equipped with reset action stops.

The new instruments are offered in five types of control action: on-off, proportional, reset, derivative, and reset plus derivative. The instruments are readily convertible from one type to another. Bristol Co., Waterbury, Conn. PVP—April.

BLACK OXIDE PIGMENT
High Covering Power

C. K. Williams & Co. have started production of an improved black iron oxide designated as BK-250. According to the manufacturer, it is jetter in color, 15–20% stronger in tinting strength, and higher in covering power. Recommended uses are in trim paints, metal protective paints, and the coloring of cement products and building materials. C. K. Williams & Co., Easton, Pa. PVP—April.

DISCHARGE PUMP
Meters Hot Resin and Waxes

Variable-discharge spur gear pump is adapted for pumping and metering small quantities of hot resins, waxes and cements. Amount of material discharged during each ejection can be varied while unit is in operation. The manufacturer claims an accuracy within 2½%. It is equipped with a bronze 1½ gallon tank receptacle which is mounted over metering section of pump. Thermostatically-controlled strip or cartridge heaters around tank, in gear housing and at nozzle heat materials to temperatures up to 400° F. Edward E. Robinson, Inc., 95 Park Ave., Nutley 10, N. J. PVP—April.

VIBRATION DAMPING
Protects Delicate Instruments

The Eberbach Instru-Mount is a vibration damping, non-magnetic base upon which the user can mount delicate mechanical, optical or electrical instruments. The Instru-Mount protects them from vibrations with frequencies as low as 10 cycles per second. Fine electrical instruments cannot be influenced by this unit made entirely of non-ferrous, non-magnetic materials. Eberbach & Son Co., Ann Arbor, Mich. PVP—April.

AUTOMATIC LUBRICATOR
For Pumps and Mixers

Lubricator can deliver oils or greases at constant pressure in any desired quantity to stuffing boxes of pumps and mixers, as well as motor and engine bearings and other lubricated equipment. Pressure up to 150 psi may be employed. This lubricator also gives the amount of lubricant remaining in the cup. Mixing Equipment Co., 1024 Garson Ave., Rochester 9, N. Y. PVP—April.

MOLYBDATE PIGMENTS
Light-Fastness

Molybdate orange may now be used for exterior paints and enamels as a result of the development of two new light-resistant molybdate orange pigments, namely Light Fast Molybdate Orange Light and Light Fast Molybdate Orange Dark.

These two new pigments have aroused considerable interest for exterior paints and enamels where good durability at low cost is required, such as implement and transportation enamels. For the first time, good durability can be obtained along with the excellent hiding, high opacity, brightness of shade, and low cost which are characteristic of molybdate orange. Tests made by several different laboratories indicate that finishes made with these pigments will show little or no change after six months in Florida or after 100 hours in the National Carbon Lamp. Pigment Chemical and Color Div. of the Sherwin-Williams Co., 115th St. and Cottage Grove Ave., Chicago, Ill. PVP—April.

PPG Appoints Lundberg

Appointment of Elmer A. Lundberg as director of agricultural development and design for Pittsburgh Plate Glass Company has recently been announced by Donald C. Burnham, vice-president.

A nationally known authority on store-fronts, Mr. Lundberg has been associated with Pittsburgh Plate Glass Company for 15 years. A graduate of Carnegie Institute of Technology and a member of the American Institute of Architects, he joined Pittsburgh as an assistant store-front designer. Two years later, he was made head of this unit.

•

Pabco Paint Conference

Under the supervision of L. F. Perrine, manager of Pabco's paint sales division, The Paraffine Companies, Inc. held their semi-annual sales conference at the Company's home offices in San Francisco, March 3rd, to outline future marketing, advertising and merchandising plans for Pabco Paints and for Pabco Paint dealers throughout the West.

The meeting was attended by the company's paint salesmen from the eleven (11) western states and culminated for them an intensive week of training and orientation at The Paraffine Companies, Inc., Emeryville, California plant.

Meet

ED FASIG

Edgar W. Fasig was born in Allen County, Ohio on July 23, 1890. He received his preliminary education in Ohio, and in 1914 entered Ohio State University where he majored in chemistry. Immediately upon graduating in 1918, he joined the United States Army and was commissioned a first lieutenant in the chemical warfare service.

In 1922 Ed was elected president of the Federation of Paint and Varnish Production Clubs, and has continued taking an active part in the Federation by serving on a number of its committees. At the present time, he is vice-chairman of committee D-1 on paint, varnish, lacquer and related products of the American Society of Testing Materials, a member of the scientific section of the National Paint, Varnish and Lacquer Association, and a member of the Coordinating Technical Committee of ASTM, ACS, NPVLA, and the Federation.

Ed is now general superintendent of the Lowe Brothers Company's plant in Dayton, Ohio.

Elections and Promotions Announced by Edgar Bros.

Alfred G. Blake has been elected vice president in charge of sales for Edgar Brothers Company. Mr. Blake is a graduate engineer of Lehigh University (1925) and has had broad business and professional experience in selling and sales executive work. He has resigned as a partner of Rogers & Slade, well-known management consultants of New York City, to join Edgar Brothers Company.

At the same time, J. Gilbert Mason, Jr., who has been with the company for over thirty years, was elected vice president. He will continue as a member of the board of directors. O. W. Callighan, a veteran of over twenty years of service in the company's sales department, was promoted to manager of special accounts. Robert V. Dilley was named manager of Specialty Sales and asistant secretary of the company.

•

McDougall-Butler Company Moving into Larger Plant

The McDougall-Butler Co. Inc., of Buffalo, New York, paint and varnish manufacturers, announced that formal negotations have been completed recently to move from their present site at 6 Evans Street, to a newer and larger plant located at 2929 Main Street in Buffalo, New York. Plans for readying the new site for production are now in progress and actual moving of machinery and stocks will commence shortly. The new site will be more spacious and equipped with up-to-the-minute manufacturing and shipping facilities.

Pabco Paint Conference

W. C. Dabney

W. C. Dabney Named President Of Devoe & Raynolds Company

Following the annual meeting of stockholders, the board of directors of the 196-year-old paint company elected W. C. Dabney of Louisville as president and re-elected as chairman, Elliot S. Phillips, who also had been president for 25 years, one of the longest presidential tenures in industry.

Mr. Phillips will continue as active chairman and also as chairman of the executive committee. Mr. Dabney, until recently senior vice president, was a co-founder of the Jones-Dabney Company of Louisville, which became a member of the Devoe group of companies in 1938. He also is vice president of the National Paint, Varnish and Lacquer Association.

Elliot S. Phillips

Kelly Joins Smith-Davis Co.

G. Klinkenstein, president of the Smith-Davis company, manufacturers of industrial finishes, trade sales finishes, and maintenance finishes, located at 10751 Venice Blvd., Los Angeles 34, California, announced the addition of another sales engineer to cover part of the Los Angeles territory. This new man is Mr. Lewis B. Kelly, who has recently been appointed to the Smith-Davis Company's sales force and has been assigned to cover a large section of the Los Angeles territory. Mr. Kelly has had many years of experience in the field of specialized production finishes as well as considerable experience in the field of trade sales products.

•

Dow Reassigns Geib

Fred R. Geib, technical representative in the Midwestern area, of the Dowicide Division, The Dow Chemical Company, has been assigned similar duties on a national basis.

Mr. Geib will work closely with the chemical sales force in the company's sales office throughout the United States. He will be concerned with developmental problems involving bactericides and fungicides which are used in the paper, leather, paint, and other industries.

•

Federation Grants Fellowship

A graduate fellowship in chemical engineering at Illinois Institute of Technology has been established by the Federation of Paint and Varnish Production Clubs, it was announced recently by W. A. Lewis, dean of the graduate school,

The fellowship leads to a doctor of philosophy degree in chemical engineering and includes a grant of $1,350 and $660 tuition for two semesters and a summer session. The fellow selected will engage in research on fume recovery in varnish plants. Applications should be sent to the dean of the graduate school, Illinois Institute of Technology, Chicago 16, before July 1, 1950.

•

Dr. Ohsol in Charge of Chemical Process Development at G-E

Dr. Ernest O. Ohsol has been appointed manager of chemical process development of the Chemical Department of the General Electric Company, according to an announcement by Dr. C. E. Reed, manager of the engineering division of the department.

Dr. Ohsol has been with Standard Oil Development for the past ten years, and as a development engineer there, he not only co-ordinated the efforts of the company's various laboratories, but also served as advisor on research and development policies.

Hercules Appoints Johnstone

Paul L. Johnstone has been appointed manager of the Market Development Division of Hercules Powder Company's synthetics department.

Mr. Johnstone joined Hercules in 1940, was on leave of absence to the Navy from February, 1942 to November, 1945, and has been working on new product development since his return from service. In his new post he will supervise product development, market surveys, and sales promotion of new products.

•

Hercules Powder Co. Names Jones Technical Assistant

E. Langford Jones, formerly chief chemist at the Virginia Cellulose plant of Hercules Powder Company in Hopewell, Va., has been named technical assistant in sales for the Virginia Cellulose Department in Wilmington, Del.

Leon L. Bertram, supervisor of the development group at the Hopewell plant, succeeds Mr. Jones as chief chemist.

•

E. J. Nelson Elected to Committee of N. Y. NPVL

Earl J. Nelson, Aluminum Company of America sales enginer, has been elected to the executive committee of the New York Paint, Varnish and Lacquer Association. A native of Havre, Montana, Mr. Nelson is a graduate of the University of Washington. His career with Alcoa was begun in 1930 at the New York sales office where he has been located ever since as an Albron pigment salesman.

•

Frank G. Penl Directing Sales at McDougall-Butler

Frank G. Penl of Mountainside, New Jersey, has been appointed to direct sales of Transportation Finishes for McDougall-Butler Co., paint manufacturers of Buffalo, New York.

Mr. Penl has been identified with the paint industry for 24 years, many of which have been devoted to sales in the transit industry—railroads, buses and fleets. His efforts will be directed to developing sales for the Buffalo concern who manufacture a comprehensive line of finishes.

•

PPG Appoints R. Wardrop Assistant to Vice President

Robert Wardrop has been appointed assistant to the vice president, it was announced recently by Richard B. Tucker, executive vice president for Pittsburgh Plate Glass Company. Formerly manager of advertising and sales promotion for the firm's glass division, Mr. Wardrop will assist vice president Frank W. Judson in handling major national accounts.

W. H. Mattil

Falk Appoints Mattil to Technical Sales Staff

Announcement of the appointment of W. H. Mattil, widely known expert in the use of fish oils in paint formulation, to the Technical Sales Service staff of Falk & Company, Pittsburgh, has been made by Stanley D. Rogaliner, Sales Manager.

Mr. Mattil was formerly technical director of the Werner G. Smith Company, Paint Oil Products Division. He received his early training as a chemist with the United Color & Pigment Co., now Calco, and with Devoe & Raynolds formulating paints and varnishes.

•

National Lead Purchases Schorn Paint Mfg. Co.

National Lead Company announces the purchase of the Schorn Paint Mfg. Company assets, consisting of a fully equipped and operating paint factory at Seattle, Washington, along with interests in several retail paint stores. The properties will be operated as a part of National Lead's Pacific Coast Branch.

•

Hardesty Enlarging Facilities

The Hardesty Chemical Co. is reconstructing and expanding its plant at Dover, Ohio. The enlargement at the plant is designed for the manufacture of plasticizers such as phthalates, sebacates, and adipates.

Caledonia Co. Representing General Mills in Canada

The Caledonia Company, Limited, has been appointed sales representative for the Chemical Division of General Mills, Inc., for Eastern Canada. This announcement was made recently by Sewall D. Andrews, Jr., vice president and director of sales of the chemical division.

The Caledonia Company, with offices in Montreal and Toronto, will handle the company's complete line of vegetable, animal and marine fats and oils as well as all organic chemical derivatives for the technical trade. The chemical division of General Mills produces a complete line of mixed and fractionated fatty acids in its new plant at Kankakee, Illinois, and operates a soybean processing plant and oil refineries at Belmond, Iowa.

South Florida Test Service Expands Facilities in Miami

The South Florida Test Service of Miami, Florida acquired an additional city block for the expansion of their inland proving grounds and plans for the erection of a new $25,000 laboratory building. Construction is to start early this summer.

South Florida Test Service specializes in weathering, corrosion and sunlight tests utilizing the climatological conditions found in subtropical southeastern Florida, but has laboratory facilities for many types of special research and test work. The company is serving leading concerns in the United States and Canada and some foreign countries testing all kinds of materials and products for durability and permanency by actual exposure to atmospheric and sunlight attack direct and under glass.

Norman W. Klein

Morehouse Industries Appoints N. Klein Head of Export Dept.

Effective immediately, Morehouse Industries will handle all export business directly from its factory headquarters, 1156 San Fernando Road, Los Angeles 65, Calif. Morehouse Industries are manufacturers of Speedline grinding mills and equipment for the processing of paints, plastics, inks and general chemicals.

Directing the new export department will be Norman W. F. Klein, who for the past several months has been closely connected with the European service of the company and who has now been advanced to head the foreign department.

•

J. Reid Elected Director Of National Lead Company

Joseph H. Reid, manager of the Titanium Division of National Lead Company, has been elected a director and member of the company's executive committee, succeeding Claude F. Garesche.

Mr. Reid began his National Lead career in 1927 with the St. Louis Smelting and Refining division as a mining engineer. He was transferred to the Baroid Sales division in 1936, where he became production manager. Mr. Reid was transferred to the general office in New York in 1941 and in 1947 was made chairman of the mining committee. In December of the same year he became assistant manager of the Titanium division. He was appointed manager of the division last year. He is a director of the Titanium Pigment Corporation.

Fred A. Walters Promoted to V. P. of Socony Paint Products

Fred A. Walters, assistant general manager in charge of manufacturing of the Socony Paint Products Company, Metuchen, N. J., has been promoted to vice president of the organization, according to an announcement by S. G. Lansing, president and general manager. He succeeds C. G. Nelson who retired Jan. 1.

Born in Philadelphia, Mr. Walters attended New York University and started in 1912 with the Standard Oil Company of New York as a stenographer and statistician in the export department. He was transferred in 1921 to China, remaining there for nine years in charge of the manufacturing and installation department. He returned to this country as a buyer in the purchasing department of the Socony-Vacuum Oil Company, Inc., and was transferred to the paint division as Mr. Nelson's assistant on Jan. 1, 1942. He became assistant general manager in charge of manufacturing in 1945.

•

Four-Square Paint Corp. Modernizes Bklyn. Plant

Modernization of the 4-Square Paint Corp., Brooklyn has been completed, according to an announcement by Harry C. Soffer, president of the corporation.

For greater production efficiency, new high speed roller mills have been installed and, in addition to other improvements, a complete new pumping system makes vehicles and other liquids readily available wherever needed in the plant.

TECHNICAL Bulletins

SOYBEAN BLUE BOOKLET

The 1950 edition of the Soybean Blue Book, annual directory is now available. The 132-page year-book contains statistical information on production and prices of soybeans and soy products. Utilization of this product are also given. Copies may be obtained from the American Soybean Association, Hudson, Iowa, for one dollar each.

FORMALDEHYDE

This 30-page technical brochure gives physical and chemical properties of U.S.P. formaldehyde, 37% solutions, commercial formalin containing 2% and 7% methanol, and paraformaldehyde. Reaction and uses are described, together with methods of analysis. Celanese Corp. of America, 180 Madison Ave., New York, N. Y.

LIQUID EJECTION

The recently redesigned Liquijector, a product of Selas Corporation of America, Philadelphia, is described fully in this folder.

The Liqui-jector is utilized in precision pneumatic operations that require positive conditioning of air or gas. Typical applications are in liquid separation, agitation, drying, spraying, instruments and pneumatic mechanisms.

FIRE HAZARD INDEX

Pocket-sized 36-page Fire Hazard Index lists, in alphabetical order, over 590 chemical, gas and common fire hazard materials. Specifies which type of fire-fighting agent to use on each, as recommended by the Board of Fire Underwriters and the National Fire Protection Association. Also contains basic facts about the principles of fire-fighting in illustrated and graphic form. Available for safety and plant engineers and members of their fire-fighting staff. Write Randolph Laboratories, Inc., 8 East Kinzie Street Chicago, Illinois.

FILM on SAFETY GLASSES

A new safety training film which should convince the most skeptical workman that it's smart to wear safety glasses has been announced by the National Safety Council, 20 N. Wacker Drive, Chicago, Ill.

Titled "Easy on the Eyes," the film opens on an emotional appeal for workers to realize what their eyes mean to them, then shows how easily eyesight may be lost and that such loss is personal. The film shows what glasses are best for specific jobs, presents case histories of injured workers and the dramatic testimony of blind persons.

KNEADING EQUIPMENT

The Patterson Foundary & Machine Co., 41 Helene St., East Liverpool, Ohio has released two new bulletins on "Kneadmaster" mixing equipment, which is designed for use in chemical and processing industries. The four-page bulletin gives detailed information on the dispersion-type mixers. The eight-page bulletin describes the kneader type of mixer for ¾ gallon to 2,000 gallon capacities.

PUMP DATA

Full information on a 5-inch stroke triplex direct-flow pump is covered in a 6-page data sheet. Specifications, illustrations, selection chart, construction and design are also included. Write to the Aldrich Pump Co., Allentown, Pa., for your copy.

LUMINESCENT CHART

Two charts which are designed to aid users of luminescent pigments in selecting the proper type of pigments for use in various types of paint vehicles, inks, etc., are now available from the N. J. Zinc Co., 160 Front St., New York, N. Y. One chart covers fluorescent pigments and another deals with phosphorescent types.

MIXING EQUIPMENT

The Cowles Co., of Cayuaga, N. Y., has published an illustrated booklet which outlines the outstanding features of their line of mixing, dissolving and dispersing units. A unit used for batches up to 40 gallons is also pictured and described.

COLLOID MILLS

In this color brochure released by the Premier Mills Corp., of Geneva, N. Y., the uses, general applications in a range of industries and principles of operation of these units are discussed.

LEAD PHTHALATE

A data sheet on dibasic lead plasticizer "Dythal" has recently been issued by The National Lead Co., 111 Broadway, New York, N. Y. According to the manufacturer, this chemical is designed for the improvement of the light and heat characteristics of vinyl and chlorinated polymers and waxes.

BLACK IRON OXIDE

Properties and uses of precipitated black iron oxide pigment are described in a booklet recently published by the Magnetic Pigment Co., 41 E. 42nd St., New York, N. Y. Charts covering particle size, distribution, oil viscosity, ultra violet light reflectance and color reflectance are included. Formulations are also given.

COLOR CHART

This chart covering both dry and flushed colors for paint and lacquer manufacturing is available from the Hilton-Davis Chemical Co., Div. of Sterling Drug Inc., Cincinnati, Ohio.

DUST CONTROL

"Duclone Collectors" for Industrial dust control and recovery has been issued by The Ducon Company, Mineola, N. Y. Describes constructional and operating features of Duclone Collectors. Illustrates efficiency curves, schematic drawings of different industrial applications, and many other pertinent illustrations. Write for catalog DC 49–138.

POLAROGRAPHY

For the convenience of research people interested in polarographic analysis, Leeds & Northrup Co., has prepared a new bibliography of scientific papers on this subject. 2208 references are listed in chronological order, covering a wide variety of applications for this analytical method. Write to Leeds & Northrup Co., 4934 Stenton Ave., Philadelphia 44, Pa.

PLANT MAINTENANCE

Publication of a book on problems of plant maintenance was announced by Clapp & Poliak, Inc., of 341 Madison Ave., New York 17, N. Y. The two-volume text, "Techniques of Plant Maintenance—1950," are the proceedings of the first Plant Maintenance Conference held concurrently with the show.

Thirty outstanding experts in various fields of maintenance led the conference and about 8,000 executives concerned with plant maintenance attended. The two volumes comprise 278 pages, $8\frac{1}{2} \times 11$, and include 47 pages of tables, diagrams, illustrations, graphs and charts.

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A.S.T.M. Standards

Published by the American Society for Testing Materials, 1916 Race St., Philadelphia 3, Pa. Price $4.85.

This compilation of A.S.T.M. Standards on Paint, Varnish, Lacquer, and Related Products, as of December 1949, gives more than 190 specifications, tests and definitions in their latest form. Prepared by A.S.T.M. Committee D-1 on Paint, Varnish, Lacquer, and Related Products, this book should be of interest and service to all those concerned with the materials covered.

Specifications, test methods, and chemical analysis of pigments cover: white, black, mineral iron oxide, blue, green, yellow and orange, red, metallic, non-hiding and miscellaneous. General test methods for pigments include alkalinity or acidity, bleeding, coarse particles, moisture, oil absorption, gravity, tinting strength and mass color of color pigments, water in petroleum products and other bituminous materials, and pH of aqueous solutions with the glass electrode.

There are specifications, test methods and definitions of terms relating to drying oils, paint driers, thinners, shellac, varnish and varnish materials. Also a section on traffic paint, paint weathering tests, and general paint tests. Other standards cover putty, rosin, liquid naval stores, and a large section comes under the heading "miscellaneous." New material in this latest book includes some 24 tests and specifications not published in previous compilations.

H_2S DATA SHEET

The manfacturing Chemists' Association has announced the publication of Chemical Safety Data Sheet SD-36 on hydrogen sulfide. It contains information on the safe handling and use of this chemical in plants and the laboratory. Copies may be obtained from the Manufacturing Chemists' Association, 246 Woodward Bldg., Washington, 5, D. C.

RESIN CATALOG

The Valite Corp. of New Orleans has recently published a catalog describing thermoplastic and thermosetting resins. Physical and chemical properties are given together with suggested application.

CASTER CATALOG

A Rapistan caster catalog supplement, describing low-cost, quality Series 40 "cold-forged" casters, has been issued for distribution by The Rapids-Standard Company, Inc., of Grand Rapids, Michigan, manufacturers of material handling equipment. The illustrated supplement lists specifications of the various diameters and types of wheels available, with load capacities ranging from 140 to 400 pounds.

The new release also gives details of the "cold-forged" process, a Rapistan quality feature which assures long life and smooth, low-cost caster performance. Copies of the new supplement, Form Series 40, may be obtained by writing to The Rapids-Standard Company, Inc.

CLUB NEWS

LOS ANGELES

The regular monthly meeting of the Los Angeles Paint & Varnish Production Club was held on Wednesday, January 11, 1950, at Scully's Cafe. There were 98 members and guests present.

The guest speaker for the evening was Mr. R. S. La Marr, Technical Director for Sierra Talc Company.

Mr. La Marr presented a very interesting and informative talk on "The Properties of Extender Pigments." He discussed in detail the structure, composition and particle shapes of Talc, Whiting, Diatomaceous Earth and mica. The talk was made especially interesting by the use of Micro-Projections of the actual materials. Mr. La Marr pointed out the effects of extender pigments on paint films from the viewpoint of flattening and bodying influence and the effect on opacity of films of the various types.

CHICAGO

The Chicago Paint and Varnish Production Club held its regular monthly dinner and business meeting on March 6th at the Furniture Club of America with 110 members in attendance. In connection with the Chicago Paint Industry's Scholarship and Fume Control Project, Chairman Hilliard announced that a course dealing with various aspects of varnishes and synthetic resins is under consideration for the fall term. Preference will be accorded to members of the paint industry for the two Fume Control Fellowships, one leading toward the M.S. degree, another at the Ph.D. level. Interested parties should apply to Dr. Selheimer at Illinois Institute of Technology.

The program for the evening was devoted to a round table discussion on "Principles of Organization and Management as Applied to the Paint Industry." Mr. H. A. Miles acted as moderator. He presented the principal features of four basic organizational patterns which were elaborated upon by a panel group of six club members. Managerial problems faced by both large and small companies, as well as by union and non-union shops, were contrasted. Need for a flexible plan embracing the best features of the basic patterns tempered by experienced administrators was stressed.

TORONTO

On March 1st, L. J. Venuto, Research Director of Binney & Smith Co., New York, delivered a talk on carbon black before the Paint Technology class, Toronto Paint and Varnish Production Club. Mr. Venuto's lecture, arranged on the invitation of Bob Law, in charge of the Paint Technology course, was given in two parts.

The first period covered the history, manufacture and properties of the various carbon blacks. Other blacks such as bone blacks, iron oxide blacks, thermal and lamp blacks were also discussed. A question period followed. The second period was devoted to a discussion of applications and common problems encountered in the industry, followed by more questions and answers.

C–D–I–C

The 298th meeting of the C–D–I–C Club was held at the Hotel Alms in Cincinnati on March 13, 1950, with 52 members and guests present.

Lew Larson, chairman of the technical committee, reported that 23 compounds had been processed and were made ready to be sent out for further tests. The club thanked the Battelle Memorial Institute for the use of their equipment, the constant temperature room and the other space made available so that this project could be completed.

President Petke then introduced two special guests, Mr. A. T. Montayne, President of the National Federation and Mr. V. C. Bidlack, executive secretary also of the National Federation. Mr. Montayne stressed the need of "Combined Effort" with the object being the improvement of our product and lessening of wasteful methods in producing it. He also mentioned that we have cooperating clubs in England and France and efforts are being made to have clubs in the other European countries. Mr. Bidlack pointed out that the headquarters established in Philadelphia were there for help to any member and club that may want to use it. They have on hand useful literature and manuals that may be puchased at nominal costs.

President Petke then introduced Dr. E. C. Botti of the Pigment Division of E. I. DuPont deNemours & Co., whose talk was entitled "Formulation of Copper Phthalocyanine Finishes." Dr. Botti stressed the high tinting strength, the resistance to chemicals and the lesser amount of flocculation obtained with the new and improved types of copper phthalocyanine blues and greens. He illustrated his talk with charts and a very striking array of colored panels obtained from the blending of C.P.C. Blues and Greens with aluminum, TiO_2, green gold and platinum violet. Dr. Botti pointed out that the "Lakes" have as good durability, are easier to grind, are not quite as strong tinctorially and are a little duller than the straight phthalocyanine colors.

BALTIMORE

The March meeting was called to order at 9:20 P.M. in the Ball Room of the Sheraton-Belvedere Hotel by vice president Levinson. President Rubin was present but still convalescing from a recent operation and preferred not to preside. Previous to the beginning of the business meeting supper had been served to 58 members and guests in the Pine Room from which the meeting was transferred to the Ball Room where Mr. L. F. Andrews of the E. I. DuPont de Nemours Company spoke on the "Use of Phthalocyanine Blues in Paint Finishes."

GOLDEN GATE

The February meeting of the Golden Gate Paint and Varnish Production Club was held at El Jardin Restaurant in San Francisco on February 27, 1950. Vice-President A. H. Cramer called the meeting to order at 8:15 P.M. with sixty-four members and guests in attendance.

Mr. Niel Estrada of the Frank W. Dunne Co. was elected to membership in the Club. Mr. Frank Leibold, Chairman of the Golf Committee, discussed plans for the June Golf Tournament. Mr. Cramer then introduced Mr. F. G. Collins of the L. H. Butcher Co. who presented the Reynolds Metals Co. film "Tale of the Powdered Pig." The meeting adjourned with a rising vote of thanks to Mr. Collins.

CALENDAR OF EVENTS

April 24–27. National Packaging Exposition of the American Management Association, Navy Pier, Chicago, Ill.

April 25. Association of Consulting Chemist and Chemical Engineers Meeting, Shelburne Hotel, New York, N. Y.

April 25–26. Metal Powder Show and Annual Meeting, Book-Cadillac, Detroit, Mich.

April 25–27. American Wood Preservers' Association, Rice Hotel, Houston, Texas.

May 1–3. American Oil Chemists Society, Atlanta Biltmore Hotel, Atlanta, Ga.

May 15–17. National Cottonseed Products Association Meeting, Shamrock Hotel, Houston, Texas.

June 26–30. 1950 A. S. T. M. Annual Meeting and Exposition of Testing Apparatus and Equipment, Chalfonte-Haddon Hall, Atlantic City, N. J.

Sept. 3–8. American Chemical Society, 118th National Meeting, Chicago, Ill.

Sept. 5–9. National Chemical Exposition, Coliseum, Chicago, Ill.

Sept. 18–22. National Instrument Conference and Exposition, Buffalo, N. Y.

Sept. 26–29. Industrial Packaging & Materials Handling Exposition, Philadelphia, Pa.

Nov. 9–11. Federation of Paint and Varnish Production Clubs Convention, Congress Hotel, Chicago, Ill.

Nov. 15–18. National Paint, Varnish and Lacquer Association Convention, Fairmont Hotel, San Francisco, Calif.

ADVERTISER'S INDEX

... the finish determines the choice

Either way HIGHER *Quality* – lower *Costs* are the End Results when you use TITANOX Pigments. Thus, for required brightness at the lowest poundage of pigment per gallon or for the highest attainable hiding at a given pigment volume, rutile TITANOX pigments are preferred.

High gloss white and tinted enamels of a wide variety are naturals for TITANOX-RA. This rutile pigment is easy to mix and grind. It exhibits remarkable whiteness and brightening power readily adaptable to toning and outstanding resistance to yellowing.

For tinted exterior finishes, especially high gloss, the easy grinding, high hiding, "non-chalking" rutile TITANOX-RA-NC is the preferred white pigment.

However, certain finishes are best pigmented with lower hiding anatase pigments. Specifically, in exterior white house paints, the desired whiteness and self-cleaning are obtainable with regular TITANOX-A-MO and at higher pigment volume with semi-chalking TITANOX-AA.

Whether anatase or rutile, when you make TITANOX your choice, you maintain:

1. top quality *through the properties imparted to your product by the pigment.*
2. low production costs *through ease of mixing and grinding.*

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When it comes to SPEED OF DRY

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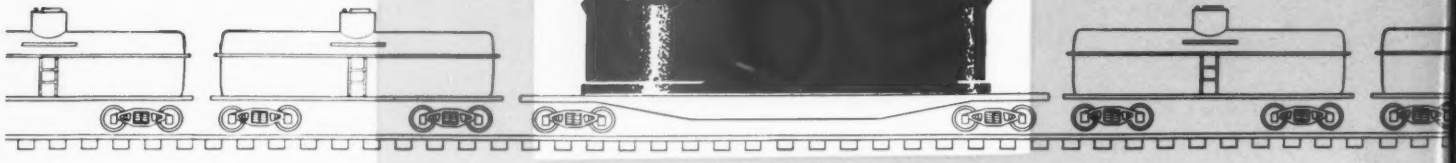

REZYL 435-1 is a well-rounded, nicely-balanced resin. It does not compromise on stability for the sake of good dry—nor does it represent a compromise on any feature for the sake of keeping its cost down. Yet "the price is right"! Many a formulator has nodded agreement in the nicest way we know: by using more and more REZYL 435-1.

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COATING RESINS DEPARTMENT

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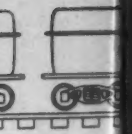

PANY

N. Y.